The Implementation of Inaportnet System to Increase The Efficiency of Ship Services at Tanjung Priok Port

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ABSTRACT

The main problems of this research on systems came from network, people, software, hardware and data resources. This research aimed to describe how the Inaportnet application system was used at Tanjung Priok Port and evaluate the severity of implementation issues. The research method used qualitative analysis, namely fishbone diagrams and Pareto diagrams. There were five informants in this study from various sections involved in the research including two ship crew representatives with different positions on the ship, two shipping company crewings, and one user. From the technical-operational point of view, four types of main problems were found: login failure, data saving failure, data synchronization failure, and user data not found, and there were nine causes of the problems. Data saving failure occurred the most frequently. The four main causes of the problems were connection disruptions, missed procedures, incorrect data entry by users, and incomplete data. The analysis of importance showed that a steady connection was the most important aspect in the use of Inaportnet system.

Keywords : implementation, inaportnet system, efficiency, ship service, port

A. Introduction

Tanjung Priok port as a branch of PT Pelindo II (Persero) is one of the largest and busiest ports in Indonesia. The port located in North Jakarta has very complete intermodal facilities enabling to serve directly all types of vessels from and to inter-trade. One of the business activities carried out by the port of Tanjung Priok is providing and/or serving facilities for passenger and/or vehicle boarding and alighting. The shipping business activities at national level that have run need media or intermediary to expand the trade area as well as to provide and at the same time improve effective and efficient ship services while keeping the agencies in the port involved, so that it is good to implement internet-based services in the ship service activities today. Today, all companies have a website which is considered as impossible to do some years ago. However, as time progresses, many companies have used website to share information for negotiation so that the payment process even uses the aid of internet. In the ship service activities in the port of Tanjung Priok, information plays an important role. In the process of Tanjung Priok port activity, updated information becomes the key success of ship service efficiency.

Based on the Regulation of the Minister of Transportation Number 8 Year 2022, to improve ship service it is necessary to implement an electronic service through Inaportnet (PM RI, 2022). The implementation of Inaportnet is done gradually and becomes the real form of Indonesia National Single Window (INSW).

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As stipulated in the Presidential Regulation Number 44 Year 2015, Indonesia National Single Window is a nationally integrated system (PP RI, 2015). The Inaportnet system according to the Regulation of the Minister of Transportation Year 2015 is an internet or web-based service system to be integrated and operated for assisting the processes of ship's departure and arrival as well as loading and unloading in the port (PM RI, 2015).

The Inaportnet system is developed to accelerate the service process from the relevant party in the port, thus facilitating the arrangement of clearance and reducing service operational cost so that it enables to improve the performance in handling trade activities and cargo traffic, especially in promoting the acceleration of Port Clearance process. Inaportnet system is provided in a portal that can be accessed by all port service users, thus enabling document shipment through one portal operated for all digital-based activities, i.e. in the form of e-document. In completing ship's documents using online system there may be mistakes in the administration. For example, Inaportnet system still needs additional applications that requires a commitment between the relevant agencies and shipping companies.

In the previous research on the Inapornet System, Malisan & Tresnawati, (2019) explain that today many parties have felt comfortable with the Inaportnet system. However, several things still need to be improved. It is expected that by using Inaportnet, with the application of technology-based information system, the performance of port management can improve (Sitorus et al., 2016). According to the study by Majid et al., (2019), the satisfaction of Inaportnet customers in the Port of Tanjung Priok Jakarta can improve as the effect of increasing efficiency, trust, reliability and the facilities that support the *e-Government* service quality.

Shipping companies have turned to use Inaportnet system in the ship's clearance process but the system itself is still hindered by the inadequate internet connection (Andromeda & Putra, 2020; Raharjo & Apriliani, 2018; Siregar, 2022). Research by Azizah et al. (2019) shows that the use of Inaportnet plays an important role in the execution of ship berthing services in terms of time efficiency, personnel, demurrage, and delayed ship clearance out in the efforts to improve ship services. In addition, according to the study by Lukijanto & Priyatmono, (2019), from the ship pilotage using Inaportnet system, the business process of ship pilotage service is carried out using an online digital system, namely Ship Pilotage Service Information System.

Based on the abovementioned explanation, the problems frequently found in the field related to the implementation of Inaportnet system can be identified; (1) Many ship's documents still have to be uploaded, (2) The checking process of the expired date of ship's certificate is still manual, (3) The size of ship's document files are big, and (4) Some officers are less responsive in completing ship's documents.

To know the causes of the problem in the Inapornet system, this research uses a *Fishbone* diagram aimed at showing the factors causing system defects. To know the percentage of defects in the Inaportnet system, this research uses Pareto diagram. Pareto Diagram is used to know the cumulative percentage of defects in the information system. This research focuses on the analysis of the implementation of Inapornet system in the port area of Tanjung Priok, especially in PT Pelabuhan Indonesia (Pelindo II) Tanjung Priok related to the overview of Inapornet system and the efforts to cope with the obstacles in the sector of Tanjung Priok Principal Harbormaster.

Based on the abovementioned problems, research questions will be developed on the general overview of Inaportnet application system in the Port of Tanjung Priok, both the frequent and rare problems faced in the implementation of Inaportnet system that occur in the Port of Tanjung Priok, and on the efforts to cope with the obstacles in the implementation of Inaportnet system in

the Port of Tanjung Priok. The aims of this reseaech are to analyze the general description and the size of obstacles in the Inaportnet system and analyze the efforts to cope with them in the sector of Tanjung Priok Principal Harbormaster.

This research is done because the users of Inaportnet system still have problems in completing the administration of ship's document online which hinders the port clearance process. This research is actually caused by the obstacles in the process of data entry to the system that raises process problem in the Inaportnet system. In the efforts to know the level of problem faced in the implementation of Inaportnet system, both at the level of frequently occur and rarely occur, by using Fishbone and Pareto methods the existing problems can be analyzed and the efforts to cope with the obstacles of Inaportnet system in the Port of Tanjung Priok can be identified.

The reasons for using Fishbone diagram are that it facilitates to illustrate the overview of problems, determine an agreement on the cause of a problem, visualize the relation between causes and problems, and help find solutions. Whereas the reasons for using Pareto diagram are to find the causes or dominant factors of a problem, as well as to determine and identify the problem prioritized to be solved.

This research tries to provide recommendations by analyzing the service performance among the outlines of problems in the Inaportnet system.

B. Methods

The research method used a qualitative approach with Fishbone and Pareto diagrams. Observation was done by visiting the location being studied and observing the process of ship's document checking in the Inaportnet portal carried out by the officers at the ship's arrival and departure in the Port of Tanjung Priok. This research saw how the activities of ship's document checking in the Inaportnet portal in the arrival process occurred before the ship berthed until the ship finished performing operational activities while waiting for the time to leave the port. Direct interviews with 15 users or shipping agents and officers of Port Business Entity (Badan Usaha Pelabuhan, BUP) were conducted by asking about the problems occurring onboard related to the Inaportnet system which was not optimal yet and would influence the ship's arrival and departure. The Fishbone diagram was developed to know the factors causing the defects of the Inaportnet system in the Port of Tanjung Priok.

Some researches using Fishbone diagram had been conducted by Sartika & Siswantoro, (2023), Rizwan et al., (2022), Putra, (2021), and Koley et al., (2016) especially in the arrangement of ship's berthing and departure in the port. The Pareto diagram showed the number of defects and the cummulative percentage of defect consequence, defect number and the percentage of all categories of defect causes. Whereas the use of Pareto diagram in this research had been applied by Tawfik et al., (2023), Kaup et al., (2022), Li et al., (2020), Cammin et al., (2020), and El Barky & Hussein, (2015) to find the categories of the defect causes of activities in some ports.

C. Results and Discussion

1. Research Findings

Based on the data collected from the observation, interview, and documentation, the researchers will explain their findings about the Inaportnet system and pilot-tug mooring at the Port of Tanjung Priok. There are five major findings as follows; (1) Problems in the main factor of network was dominated by the connection disruptions, thus disrupting the data processing; (2) Human-error. If a minor mistake occurred, the officer in-charge took only a short time to fix it; (3) Damage to computer hardware would have fatal consequences because it could hinder the productivity and even loss of data; (4) It was still difficult to upload documents since the

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maximum capacity for uploading documents in the Inaportnet system was only two megabytes (MB); (5) The server was down or experienced a connection error.

2. Ship's Arrival Service Process

To apply for notification services of ship's arrival and loading-unloading activities, shipping agent must appoint an agency to be verified by the Main Port Authority Office or Harbormaster and Port Authority Office after which the status will change to be "ship news". Approval on the ship agency's activities will be given latest 15 minutes since the documents are received in complete and correct conditions by the Main Port Authority Office. A shipping agent must complete the data for ship's arrival news latest 1 x 24 hours before the ship enters the port, and subsequently the news is sent to the Port Authority in the form of Ship's Arrival Notice and to the Principal Harbormaster Office in the form of Approval Letter for Entry. Ship's Arrival Notice is issued latest 10 minutes since the documents of ship's arrival news are received in complete and correct conditions by the Main Port Authority Office. The Approval Letter for Entry is issued latest 30 minutes after the documents for the data of ship's arrival news are received in complete and correct conditions by the Main Port Authority Office. Approval for Loading-Unloading Activity Plan is given latest 10 minutes after the documents for the data of ship's arrival news are received in complete and correct conditions by the Main Port Authority Office. Subsequently, the Port Business Entity sends the data of Ship Mooring Plan and the Operation Plan or RPK-RO to the Main Port Authority Office. The Determination of Ship Service is issued latest 10 minutes after the documents for the data of ship's arrival news are received in complete and correct conditions by the Main Port Authority Office since the notification of RPK-RO is received in the Inaportnet application.

Then, the Approval Letter for Entry of pilot boat from BUP will be issued if the Determination of Ship Service has been determined by the Main Port Authority Office. After the issuance of Approval Letter for Entry of pilot/tug boat, the next step is the issuance of Approval Letter for Ship Maneuver by the Main Port Authority Office latest 10 minutes after the notification of SPK Pandu Tunda issuance is received in the Inaportnet application. After the Approval for Maneuver (POG) has been issued, the ship pilotage service can be done according to the service obligation until the ship berths in the port. Before the shipping agent delivers the services at the ship's arrival with an online Inaportnet system based services, the shipping agent must have a username and password to login the Inaportnet system. After login has been successfully done, the shipping agent can make a request for arrival services by clicking the icon of arrival with the menu.

3. Result of Interview

In this research there are five informants from various related, two representatives of ship crew with different jobs onboard namely Chief Officer and Ship Administrator, one informant from *Crewing* of the first party company providing the services of PT Pelni, one from *Crewing* of the second party company providing the services of PT Transpower, and one informant from Users (KSOP).

a. Response to the Inaportnet system in the process of ship's clearance in and clearance out.

Based on the result of interview with the sourcepersons who are crew and crewing staff, the existence of Inaportnet system gives a very positive influence on the arrangement for the isssuance of sailing approval letter, which is easier because it can be accessed anywhere and can minimize the necessary time and cost in all activities in the port and prevent illegal levies due to a direct encounter. Payment transaction is also made online and integrated.

b. Problems hindering the service process in the Inaportnet system.

Based on the result of interview with

the sourceperson who is crewing staff, the frequently occurring problem is server trouble in the Inaportnet system which hinders the process of ship's clearance-in and clearance-out, causing a failure to upload a document because its size is too big and because it is too long for the Inaportnet officer to confirm the ship's arrival and departure.

c. Recommendations for Inaportnet system integration.

It is necessary to add the Inaportnet domain to reduce the occurrence of down system. If a system error happens for a quite long time, alternatively a proposal can be made conventionally. Port of Tanjung Priok is expected to improve the aspect of connectivity (broadband access with big scale bandwith and dedicated Fiber Optic.

4. Result of Fishbone Diagram

a. Login Failure

Fishbone diagram helps identify, sort, and show various causes of the problems of Inaportnet system used for services in the Tanjung Priok Port activities. The efforts to ease the identification of the main causes of the problems that happen can be done by identifying and listing all the causes and then classify them based on their relation to each other. In this research there are four main problems frequently occurring, namely login failure, data saving failure, data synchronization failure, and user data not found. The factors causing problems in this research are classified by the writers into several main factors, namely network, people, software, hardware, and data base (data resource). The problems observed in the Inaportnet system is login failure (Figure 1).

Login failure to the Inaportnet system in this research is caused by the network factor; connection disruption in the system and loose connector. In the factor of people or system user, the problem is caused by the incorrect entry of username ID or password. This mistake frequently happens because the system users forget the username ID or password when they do login, or they fail to save data. The problem of data saving failure may be caused by the factors of network, people, software, hardware, and data base (data resource).

b. Data Saving Failure

The factor causing defects in saving the data that has been input is the problematic network; disrupted connection and loose connectors. Inaportnet has a big number of users and data items to handle. So that, it will increase the number and time of access, especially in the beginning of all arrival/departure processes. The port that has many data entries will acummulate a big volume of accesses and this will become a burden for the growth of users and ships. Consequently, the following problems will influence the use of system; the performance of system will slowdown and increase the time utilization in the system, the increase in access will erode the system resources and can cause a failure.

c. Data Synchronization Failure

The problem of data synchronization failure in this research is caused by the factors of network, people, hardware, and data base (data resource).

The factor of failure to synchronize the data that has been input is caused by the problematic network; disrupted connection and loose connectors. The user's burden is very heavy and numerous computers connected to access a network will cause slow network. User's mistakes based on the procedures of data entry are missed procedure and incomplete data entry that causes data synchronization failure. This is due to the huge number of documents to upload and the complexity of data processing flow. The unupdated data base makes the data cannot be accessed. This happens because there is a file in the database that changes or loses, thus causing data synchronization failure. Therefore, it needs to be updated routinely. The excessive use of computer and the large size of file to process become the causes of

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hardware breakage.

d. User Data not Found

The problem of user data not found in this research is caused by the factor of network, people, and data base (data resource) Figure 2.

Disrupted connection makes the system fail to identify user name while searching so that the user data cannot be found. This connection disruption is caused by the slowdown of internet connection because many computers are connected in a network. The large number of user data causes the system users make mistakes in the user data entry, so that the system cannot find the requested user data. Unupdated data base causes the loss or damage of some files so that the user data cannot be found.

5. Result of Pareto Diagram

a. The Pareto Diagram of Each Type of Defect

Pareto analysis is used to identify the type of contribution made by an individual component of a system to the whole system based on the Principle of Pareto, where around 80 percent of consequency comes from 20 percent of the cause, so that in this research around 80 percent of consequence type (defect) comes from 20 percent of the causes of defect. In the other word, a small part of cause has a massive effect. Understanding this concept helps identify the initiative to set a priority to make the greatest impact. The development of Pareto diagram starts since the development of disruption list, then summing up each cause and turning them into a percentage in which subsequenty the cummulative number is counted in the form of percentage.

b. The Pareto Diagram of the Causes of Login Failure

The Pareto diagram shows the number and percentage of the causes of login failure in the Inaportnet system.

Based on analysis, there are totally 68 causes of defects that occur as login failure where it is most freguently caused by disrupted connection, that is 50 times or 73.53%. This percentage shows that if the system experiences login failure as many as 10,000 times, then the cause of this defect will occur 7,353 times. The second ranked cause of defect is user's mistakes in the entry

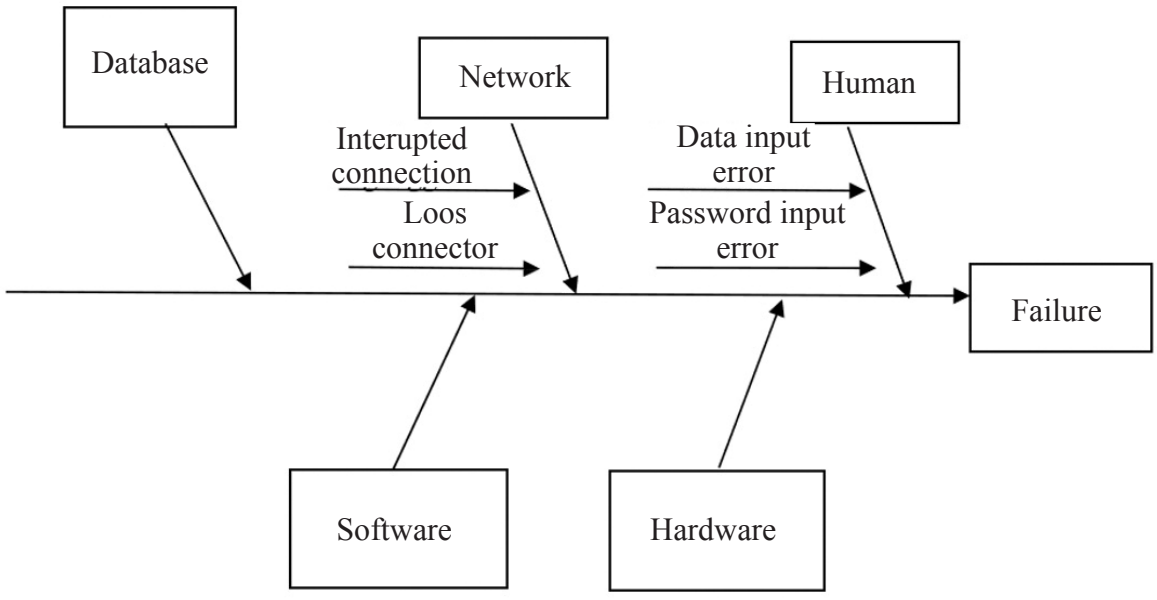

Figure 1 The Fishbone Diagram of Login Failure

of the username ID or password, that is as many as 14 times or 20.59%. While the least frequently occurring cause of login failure is the loose connector, occurring four times or 5.88%. Therefore, improvements can be done by focusing on the two biggest causes, namely disrupted connection and user's incorrect entry of username ID or password. It is because both causes of the defect dominate more than 80% of the total causes of defects in the failure to login the Inaportnet system so that they have a bigger impact.

c. The Pareto Diagram of the Causes of Data Saving Failure

The Pareto diagram shows the number and percentage of the causes of data saving failure in the Inaportnet system.

Based on analysis, it is known that the data saving failure occurs 260 times in total. The frequency of the causes of data saving failure is dominated by disrupted connection as many as 94 times or 36.15%. This percentage shows that if the system experiences a data saving failure as many as 10,000 times, then the cause of this defect will occur 3,615 times. The second ranked cause of defect is the missed procedures as many as 65 times or 25.00%. Subsequently, the third ranked cause of defect is incorrect data entry by users as many as 32 times or 12.31%. In the fourth rank, the cause of data saving failure is the existence of virus attack as many as 25 times or 9.62%. Then, the fifth ranked cause is the incomplete data entry by users as many as 18 times or 6.92%. The sixth, loose connector causes data saving failure many as 16 times or 6.15%. It is followed by the unupdated data base which becomes the seventh cause as many as six times or 2.31%. The last, the least frequent cause of defect in the data saving failure is broken *hardware* which is as many as four times or 1.54%.

So, classification can be done by focusing on the four biggest causes of defect, namely connection disruption, missed procedures, incorrrect data entry by users, and virus attack. It is because the four causes of defect dominate 80% of the total causes of defect in the data saving failure in the Inaportnet system.

d. The Pareto Diagram of the Causes of Data Synchronization Failure

The Pareto results shows the number and percentage of causes of data synchronization failure in the Inaportnet system.

Based on analysis, from 184 times of data synchronization failure, it is found that its causes are dominated by the missed procedures as manay as 55 times or 29.89%. This percentage shows that if the system experiences a data synchronization failure as many as 10,000 times, then this cause will occur 2,989 times. The second ranked cause of defect is disrupted connection occurring 54 times or 29.35%. The third ranked cause of defect is incorrect data entry by users as many as 33 times or 17.93%. In the fourth rank, the cause of this defect is incomplete data occurring 22 times or 11.96%, followed by the fifth rank cause in the forms of loose connector and unupdated data respectively seven times or 3.80%. The last, the least frequent cause of this defect is the broken hardware as many as six times or 3.26%. So, classification can be made by focusing on the four biggest causes, namely missed procedures, connection disruption, incorrect data entry by users, and incomplete data. This is because the four causes of defect dominate 80% of the total causes of defect occurring in the data synchronization failure in the Inaportnet sistem.

d. The Pareto Diagram of the Causes of User Data Not Found

The following diagram shows the number and percentage of the causes of user data not found in the Inaportnet system (Figure 4).

In Figure 3, the total number of the occurence of user data not found is known as many as 55 times and the frequency of user data not found is dominated by the incorrect data entry of name as many as 30 times or 54.55%. This percentage shows that if the system experiences this defect as many as

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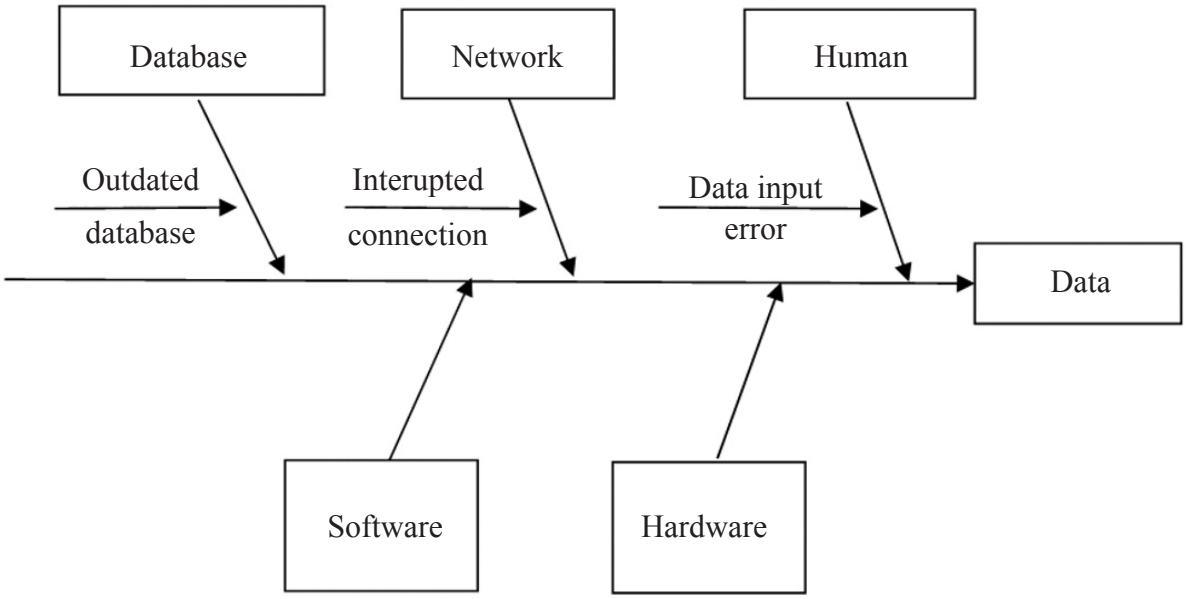

Figure 2 The Fishbone Diagram of User Data not Found

10,000 times, then the causes of this defect will occur 5,455 times. The second ranked cause of this defect is the disrupted connection as many as 18 times or 32.73%. Whereas the least cause of user data not found is unupdated data base as many as seven times or 12.73%. So, improvement can be done by focusing on the two biggest causes of the defect, namely the incorrect data entry of name and the disrupted connection. It is because those two causes dominate 80% of the total causes of user data not found in the Inaportnet system.

e. The Pareto Diagram of Defect Types in the Inaportnet System

This Pareto diagram is developed to know the types of defect frequently occurring in the Inaportnet system so that deeper improvements can be made to maximize the use of Inaportnet system in the Tanjung Priok port services.

Based on analysis, the biggest type of defect (problem) that occurs is data saving failure as many as 260 times or 45.86%, followed in the second rank by data synchronization failure as many as 184 times or 32.45%. The third type of system defect is login failure as many as 68 times or 11.99%. And the least frequently occurring type of defect is user data not found as many as 55 times or 9.70%. In accordance with the principle of Pareto, improvements can be made by focusing on the three biggest types of defect, namely data saving failure, data synchronization failure, and login failure.

f. The Pareto Diagram of All Causes of Defects

The development of Pareto diagram of all causes of defects occurring in the Inaportnet system aims to know the causes of defects that dominate in the system enabling to focus on deeper improvements to maximize the use of Inaportnet system in the Tanjung Priok port services.

Overall, based on analysis, the biggest cause of defect in the Inaportnet system in the port of Tanjung Priok in March 2022 is the connection disruption as many as 216 times or 38.10%. According to the principle of Pareto and the cumulative number of the causes of defect in this research, system improvement can be focused on the four biggest causes, namely connection disruption, followed by missed procedures as big as 21.16%, incorrect data entry as big as 16.75%, and incomplete data as big as 7.05%. It is because the four causes of defect dominate 80% of the total

causes of defect in the Inaportnet system.

g. The Importance of Problem Using Likert Scale

In this research, the calculation of Likert scale is done to know the opinion and perception of people about the importance of each aspect related to the use of Inaportnet system in the Tanjung Priok port services. Questionnaires are filled in by five respondents from the Inaportnet system users. The aspect having the highest weight of importance shows the most important attribute in the eyes of users. Based on the calculation analysis, it is concluded that the aspect of quality considered by the users of Inaportnet system as the most important is steady connection with the average weight of 4.80. In the second rank is the renewal of data base with the average weight of 4.80, followed in the third rank by the completeness of data with the average weight of 4.60. In the fourth rank are well-installed connector and work concentration with the average weight of 4.60. The fifth rank is the aspect of antivirus renewal with the average weight of 4.60, and the last rank is structured procedures with the average weight of 4.40.

Without internet connection the system will not work. In the implementation, ship and cargo services using Inaportnet are carried out online. However, the other aspects such as structured procedures, complete data, data base renewal, antivirus renewal, good connector installation, and operator's concentration have the same importance in maximizing the use of Inaportnet system to enable more efficient and effective services.

6. Discussion

The graph of complex problems occuring in the Inaportnet system is analyzed using Fishbone and Pareto diagrams. Based on the observation and analysis of the Inaportnet system implementation in the port of Tanjung Priok, four types of defects or problems are found with nine causes and their occurrence totally as many as 567 times. Data saving failure becomes the most frequently occurring obstacle compared to the other types of

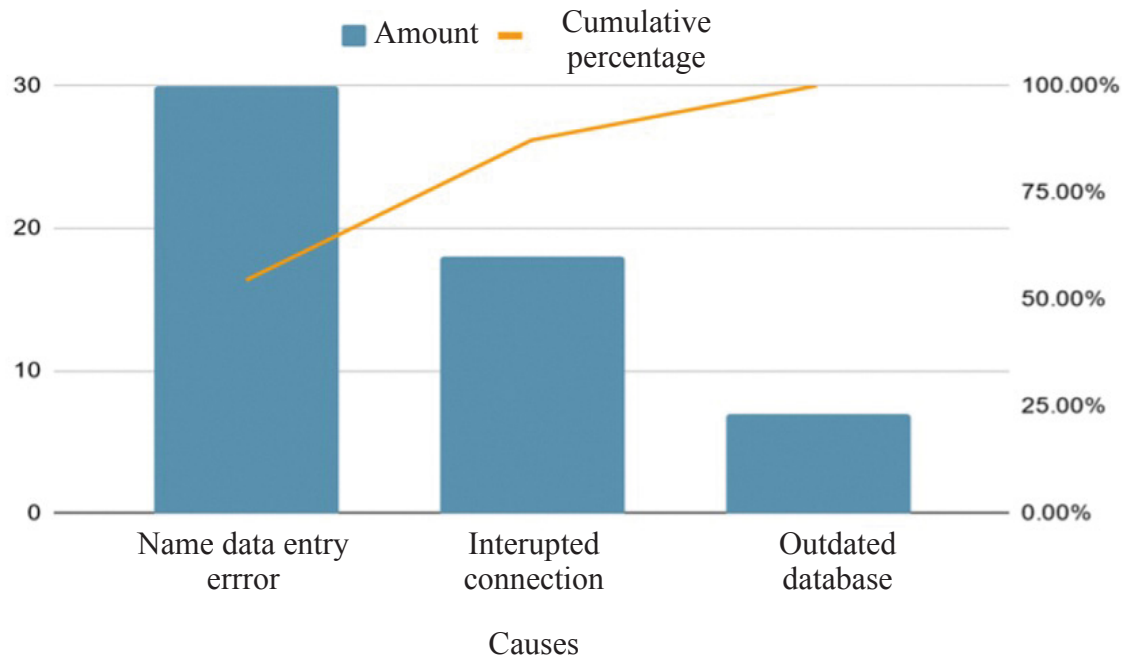

Figure 3 The Pareto Diagram of the Causes of User Data Not Found

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defects, where it occurs 260 times or 45.86%. The second rank is data synchronization failure as many as 184 times or 32.45%. Subsequently, in the third rank, the problem of login failure occurs 68 times or 11.99%. And the least occuring defect is that user data not found as many as 55 times or 9.70%. In this research, the cause of defect frequently occurring in the use of Inaportnet system is connection disruption as many as 216 times or 38.10%, and the least frequently occuring cause of defect is broken hardware as many as 10 times or 1.76%.

In order to make improvement, based on the principle of Pareto in this research, it can be carried out by focusing on the four biggest causes of defect (problem) namely connection disruption 38.10%, missed procedures 21.16%, incorrect data entry by users 16.75%, and incomplete data 7.05%. Those four causes dominate 80% of the total causes of defects in the Inaportnet system. According to the analysis of importance, steady connection becomes the most important aspect in the use of the Inaportnet system, with the average weight of 4.80. In the second rank of aspect importance is data base renewal with the average weight of 4.80. It is followed in the third rank by the data completeness with the average weight of 4.60, subsequently in the fourth rank by the well-installed connector and work concentration with the average weight of 4.60. In the fifth rank is the aspect of antivirus renewal with the average weight of 4.60, and the last position is the structured procedures with the average weight of 4.40.

The result of this research specifically supports the research on the use of Inaportnet information system for customer satisfaction that will have an impact on the port performance (Anggoro & Susanti, 2022; Majid et al., 2019; Sirait & Thalib, 2020). In general, this research is in line with the use of Inaportnet information system for customer satisfaction that will have an impact on the employee performance in a shipping and logistics transportation company (Firnanda & Hati, 2021; Puspitasari & Pangestu, 2021; Siregar, 2022; Widyaningrum & Widianti, 2020). This research related to clearance using Intaportnet system to accelerate estimated time departure is in line with the study by Andromeda & Putra, (2020), although this system is still hampered by inadequate internet connection.

This research is also in line with the study by Risyad & Priati, (2020), that the use of Inaportnet system can become a solution to cope with the lack of technology and information system supports specially designed to fulfil special services in the imigration inspection at sea border checkpoints. Specially related to the Inaportnet users, the result of this research is in line with the study by Malisan & Tresnawati, (2019), stating that although many people feel comfortable with the Inaportnet system, there are still several things to improve to increase the service users' satisfaction. In general, by using Fishbone and Pareto diagrams simultaneously to finds the roots of problems and causes of defects, this research supports several previous researches especially in the container terminal and port as well as transportation (Albana et al., 2021; Eldweny et al., 2022; Mufti, 2022; Naidoo et al., 2022; Netsawang, 2021; Tafia & Islam, 2022).

D. Conclusion

In the development and utilization of the Inaportnet service application system, a limited-scale trial has been conducted in the port of Tanjung Priok, Jakarta. The system has proven to be able to increase the effectiveness of services both qualitatively and quantitatively, faster, cheaper, and more accurate since it can be accessed anywhere. The utilization of this application succeed to improve the port operation services, especially in ship service and logistic cost reduction in the port while reducing waiting time. The efficiency is resulted among others from its ability to prevent illegal levies since the payment transactions are made online and integratedly. In the transition process from manual to digital system, changes happen not

only in the business process but also in the preparedness of all related parties to adapt to the implementation of that new technology. However, the Inaportnet system still needs improvements and refinements based on the findings of this research.

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