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Analysis of the Implementation of PTOS-M (Pelindo Terminal Operation - Multipurpose) at PT PelabuhanTanjung Priok Branch Cirebon

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ABSTRACT

This study aims to determine the effect of implementing PTOS-M (Pelindo Terminal Operation System-Multipurpose) at PT Pelabuhan Tanjung Priok Branch Cirebon using the SWOT analysis method (Strength, Weakness, Opportunity, Threat). SWOT analysis was carried out using the IFAS (Internal Factor Analysis Strategy) matrix, which describes the strengths and weaknesses of PTOS-M, and the EFAS (External Factor Analysis System) matrix, which describes the opportunities and threats factors. From the results of the data analysis, obtained a total score of strengths, weaknesses, opportunities, and threats, and each obtained the highest strength weight of 3.8, the highest weakness weight of 1.6, the highest opportunity weight of 3.4, and the highest threat weight of 1.6. The average total score on the IFAS matrix is 2.2, while the EFAS matrix is 1.8. The result of this study is that PTOS-M is very influential on the company and it is highly recommended if this system is good to be implemented in all branches.

1. INTRODUCTION

The port is one of the nodes in the chain of smooth sea and land cargo. In general, a port is an area of water that is protected from storm/waves, so that the ship can turn (turning basin), dock and loading and unloading of goods and movement of passengers can be carried out [1]. Ports have a strategic role in supporting the transportation system because they are thenodes of connection between regions. According to the law of the Republic of Indonesia Number 17 of 2008 concerning shipping in article 1, Paragraph 14 [2] the function of the port is to support the smooth, safe and maintained traffic flow of ships, passengers, and goods, safety, and security of shipping, place of intra-or transfer intermodal as well as encourage the national and regional economy while still paying attention to regional spatial planning.

One of the keys to encourage ports in Indonesia to compete globally is by provide faster, cheaper and more transparent services which of course must be supported by the use of informationtechnology. So to improve port services, ports in Indonesia carry out digitalization which is an important factor in realising a digital-based port. Transformation digital is not about technology, but more than that to new strategies and ways of seeing, the strategy in question is the company's strategy in using technology so that the company can compete with rival companies [3].

PT Pelindo Multi Terminal (SPMT), subholding of PT Pelabuhan Indonesia (Persero) continues to improve. Commited to provide port operations that are free from illegal fees, SPMThas begun to digitalize services by launching the Pelindo Terminal Operation System- Multipurpose (PTOS-M) application. PTOS-M is a multipurpose terminal service operating system platform develop internally by the Pelindo group, which is end-to-end, provides fully integrated features as order management, front-end and back-end in the multipurpose terminal service process (dry bulk, liquid bulk, general cargo, receiving & delivery of goods) as well as record-to-report in one platform (configuration, stable and flexible) [4]

By making PTOS-M the service standard in all working areas after the Pelindo merger, it is hoped that it can shorten port waiting times (port stays) and cargo stay times, as well as closing illegal fees at ports. Its implementation is of course not only to pursue Pelindo's profits, the most important thing is to reduce

cargo stays in port as we know in Indonesia cargo stays still big problem that difficult to solve. With a short port stay, the costs incurred by SPMT service users can be minimized. Apart from that, the PTOS-M application can measure loading and unloding speeds accurately, and can detect problems in each operational part, so repairs can be carry out quickly.

PT Pelabuhan Tanjung Priok Branch Cirebon, as one of the subsidiaries of PT Pelindo Multi Terminal (Persero) also implemented the PTOS-M (Pelindo Terminal Operation System- Multipurpose) system. PTOS-M was implemented at PT Pelabuhan Tanjung Priok Branch Cirebonsince 19 May 2023. There are many good impacts in the application of the system without exception in terms of financial impact. The optimisation is expected to improve port services to bemore transparent, efficient, and accountable.

Based on the description above, it is necessary to conduct research to analyse the impact of PTOS-M implementation on PT Pelabuhan Tanjung Priok branch Cirebon and formulate development strategies to support the implementation of a sustainable system because PT Pelabuhan Tanjung Priok branch Cirebon is a trial port in using this application, for this reason it is necessary to do research on whether this application can support the desired things to be done in port management which is still chaotic, especially in regional ports where digitalization transformation is still ongoing little is done because the process still use manual system. How can branch ports that use PTOS-M application increase productivity with applications that need still improvement so that they are perfect for using at the central Pelindo in Jakarta where the port is the most complex port with many export and import goods at this port and with all more complex problems to be more transparent, efficient and accountable.

2. LITERATURE REVIEW

2.1 Port

A port is a water area that is protected against waves, which is equipped with marine terminalfacilities including a pier where ships can moor for loading and unloading goods, cranes for loadingand unloading goods, a sea warehouse (transito) and other places. storage where ships unload theircargo, and warehouses where goods can be stored for a longer time while waiting for delivery to their destination or shipment. This terminal is equipped with railways and highways [5]. The definition of port, according to fair, is "…The port is a place which regulary provides accommodations for the transfer of passengers and/or goods to and from water carries" [6].

According to Law number 17 of 2008, a port is a place which consist of land and surrounding waters with boundaries as a place for government activities and economic activities used as a place for ships to dock, dock, board and disembark passengers and/or loading and unloading good s equipped with safety facilities shipping and port supporting activities as well as a place intra and inter-mode transfers [7]

2.2 Port Services

According to Lasse [8], port services can be grouped according to the types of facilities available in the port area, namely (a) basic facilities aimed at serving ships, goods, and passengers; and (b) Facilitating businesses supporting the main port activities. Vessel services include pilotage, tugboat, dock/kade metre, and clean water services. Ship berthing is planned jointly between the port authority, terminal operator, shipping company or agent, customs, immigration, quarantine, and security. The most important factors to consider in ship services are:

a. The match of ship data with data in the system base or what is often called the ship master;
b. Accessibility to the requested mooring is not smaller than the draft or laden ship;
c. Load/unloaders, lifting and transport equipment, warehouses/fields, and facility networks are available at the mooring according to the type of cargo;
d. The length of the kade metre corresponds to the length of the ship (LOA) moored with a safe clearance.

Modern ports based on network planning determine the port activities that are included in thecritical crossing, so that the terminal has been able to predict the ship's time in port by only estimating the tonnage or TEUs of cargo loading and unloading. Thus, the visiting ship is able to schedule it's voyage as accurately as possible to meet the estimated time of arrival (ETA) and estimated time of departure (ETD).

2.3 Digitalization

Digitalization explains working by utilizing information and communication-based tools and practices. Digitalization using internet technology in Indonesia has affected some business sectorsand orders for online shopping to increase the use of transportation for cargo delivery. Especially for logistics digitalization, technology as a process of increasing added value uses or produces a product, where the product is inseparable from the other existing products. Shipping companies can submit the electronic delivery order (E-DO) by uploading it to the website [9].

2.4 SWOT Analysis

SWOT analysis is a strategic planning technique that is divided into two factors in the form ofexternal factors and internal factors. Factors that come from outside or external play a role in monitoring the micro and macroeconomic environment through opportunities and threats related to organization. While the internal factors are strengths to see evaluate the strengths and weaknesses to evaluate the weaknesses of the company [10].

According to (Gürel & Tat, n.d.) SWOT compares strengths, weaknesses, opportunities and threats. Strengths and weaknesses are reviewed to determine current and future opportunities and threats. The clearer the knowledge of strengths and weaknesses, the less opportunities are missed.Good opportunities can be used to counter threats, and weaknesses can be overcome through the company's strengths [11].

Based on the research of (Ferrel & Harline, n.d.) The purpose of SWOT analysis is to gain information through analysing the internal conditions (strengths and weaknesses) and external conditions (Opportunities and threats) of a company. The analysis states that information can help the company achieve it's goals and provide an estimate of the problems that will be overcome, or avoided in order to achieve what is dreamed of. In addition, the purpose of SWOT analysis in an organization is to straighten out the internal and external factors of the organization which have been analyzed. When something goes wrong, then the company must know the weaknesses faced so that the organization runs smoothly, weaknesses becomed strengths, and organization know howto handle threats into opportunities [12].

A. Matriks SWOT

According to (David & Fred, n.d.) explained that the SWOT matrix is a matching tool that helps companies improve 4 types of strategies in the form of SO (Strength-Opportunities) strategies, WO (Weakness-Opportunities) strategies, ST (Strength-Threats) strategies, and WT (Weakness- Threats) strategies [13].

SO Strategies (Strength-Opportunities)

According to (David & R, n.d.) these strategies use the internal strengths of an organization in achieving success through opportunities that exist in the organization. Organizations will carry outWO, ST, and WT strategies in achieving conditions where the company will use the SO strategy. When an organization or company has many threats, the company tries to avoid them so that it cango through opportunies well.

WO Strategies (Weakness-Opportunities)

The strategy is utilized as a strategy to overcome the company's weaknesses which come from internal through gaining the benefits of external opportunities. Usually when there is a big opportunity, there are things that prevent the company from using the opportunity. This is due to the internal weaknesses that the company has.

ST strategies (Strength-Threats)

Strength as a driver of a company in reducing threats from outside the company. This situation does not state that companies that have strength will continuously experience threats from the external environment.

2.5 EFAS and IFAS MATRIX

The IFAS matrix is used to determine how big the role of the internal factors contained in thecompany is. The IFAS matrix describes the company's internal conditions consisting of strengths and weaknesses which are calculated based on ratings and weights. The following is the form of the IFAS matrix.

IFAS (Internal Factors Analysis Strategy) is a form of strategic analysis of internal factors ofan organization or company. This analysis needs to be carried out to get a portrait of the strengths and weaknesses of the organization or company.

The internal factor evaluation matrix was developed in five steps:

1) List the internal factors, including 1 to 10 internal factors, including strengths and weaknesses
2) Each factor is weighted from about 0.0 (not important) to 1.0 (very important). Factors that are considered important are given the highest weight and the sum of all weights equals 1.0 all weights equal 1.0.
3) Rank the factors 1 to 4 with strengths must be ranked 3 and 4, and weaknesses are ranked1 and 2.
4) Multiply the weight of each factor
5) Sum the average score of each variable.

The EFAS matrix is used to determine how much role the internal factors play in the company.The EFAS matrix describes the company's external conditions consisting of opportunities and threats which are calculated based on weight and rating. The following is the form of the EFAS matrix.

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3) Rank the factors 1 to 4 with strengths must be ranked 3 and 4, and weaknesses are ranked1 and 2.
4) Multiply the weight of each factor
5) Sum the average score of each variable.

2.6 PTOS-M (Pelindo Terminal Operation System- Multipurpose)

a. PTOS-M

PTOS-M is an application that assists terminal operators in managing various general cargo, liquid bulk, and dry bulk from planning, operating, monitoring, to reporting. By making PTOS-Ma service standard in all Pelindo post-merger areas, it is expected to shorten port stays and cargo stays, and close the loophole of extortion at the port.

Digitalization of port services through PTOS-M makes it easier for service users because service applications are made through a website portal. Transaction payments can also be made non-cash, preventing room for corruption in the port environment.

PTOS-M is a multipurpose terminal service operating system platform developed internally by the Pelindo group, End-To-End in nature, providing fully integrated features for Order Management,

Jurnal Logistik Indonesia Vol. 8, No. 1, April 2024, pp. 42-54

Front-End and Back-En in the Multipurpose Terminal Service Process (Dry Bulk, Liquid Bulk, General Cargo, Receiving & Delivery of goods) as well as Record-To-Report in one platform (Configurable, Stable and Flexible)

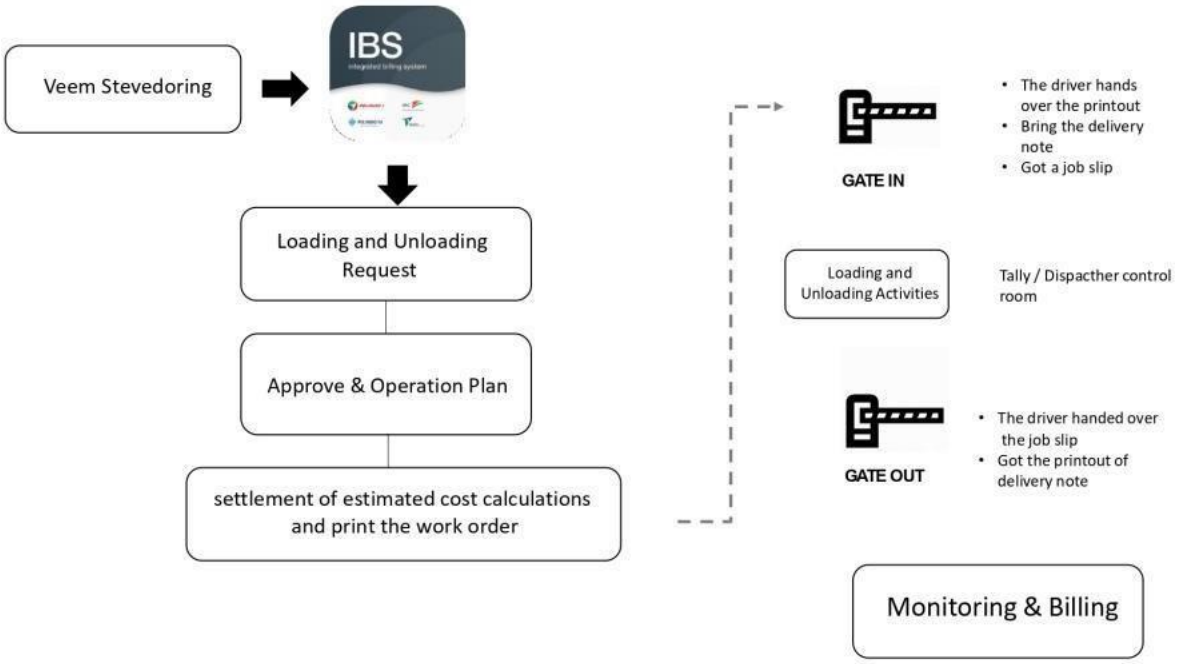


Figure 1.1 Flow of customer activities

The Flow of Customer Activities can be explained as follows:

b. Veem Stevedoring

Veem stevedoring can request loading and unloading by using IBS (Integrated BillingSystem).

c. IBS (Integrated Billing System)

Application owned by PT Pelindo Indonesia III (Persero) which is aimed at all port customers.

d. Loading Unloading Request

Veem stevedoring carries out requests for Loading and Unloading activities based on commodities and tonnage independently.

e. Approve & Operation Plan

The planner approves the application and executes an operation plan with Veem Stevedoring.

f. Settlement of estimated cost calculations and print the work order

Veem Stevedoring makes payments using billing codes at ATM, Mobile/Internet banking, Bank Teller or Auto collection. Print and distribute to truck/vehicle.

g. Loading and Unloading Activities

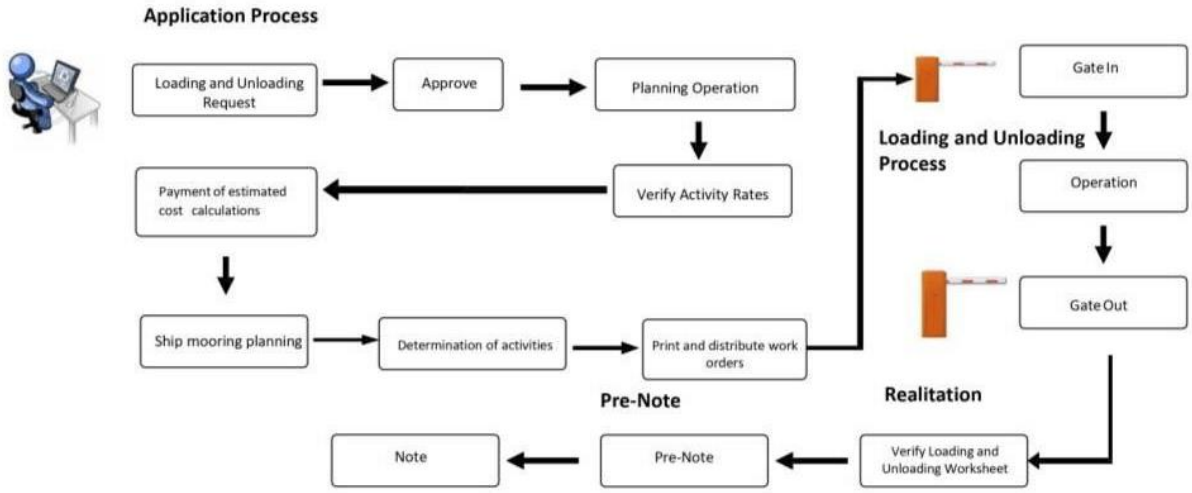
Loading and Unloading is a term often used in the shipping and logistics industry to describe the process of loading and unloading from ships, aircraft or other transportation vehicles. This is an important stage in moving goods from one locationto another. This process involves taking goods from ships or transport vehicles and transferring them to storage or their final destination. This process is carried out usingspecial equipment suchs as cranes, forklifts or conveyors to facilitate the

handling of heavy or larges goods.

h. Monitoring & Billing

Veem stevedoring can monitor and check loading and unloading activities, and after the activity is complete, you will receive a billing on the respective customer portal.

Figure 1.2 Flow of Operational



Based on the Service Memorandum of the Director of Non-Container Terminal PTP Operations dated June 20, 2023, concerning Standardization and Implementation of Loading and Unloading Operational Forms.

a. Application Process

Request for Loading and Unloading by the service user by IBS (Integrated Billing System), which is a payment system that makes it easier for port service users to use acentralize port service through only one door, so using this sytem makes the service more centralized and efficient.

The Administrative Officer then prepares a plan for Loading and Unloading goods, from the operation plan to the number of Loading and Unloading Workes and equipment requirements. Based on this plan, the administrative officer calculates the estimated cost calculation, or if the service user requires long-term coorperation, the administration officer will provide information to service users must pay the fee first; then, the administration to service users to take part in ship meetings to determine mooring vessels.

b. Loading and Unloading Process

The Loading and Unloading process begins with the startwork process, namely recording the work carried out by the foreman at the start of each shift until recording endwork at the end of the shift. The Loading and Unloading process is carried out by Loading and Unloading workers in accordance with the hatch zoning, where one hatchconsists of several people in 1 aisle. The recorded tonnage unloaded is carried out by the tally officer and recorded on a tally sheet where the data will be used in the Work Order when the truck driver exists through the gate out. At the end of each Loading andUnloading, the supervisor will submit printed documents of the Daily Report, Time Sheet, Labor Time Sheet, and Tally Sheet for activity verification and The Loading andUnloading manifest to supervisory level officers.

c. Realitation

In this process, the administrative officer carries out the realization based on the printedLoading and Unloading Worksheet, which has been signed by the supervisor/assistant manager/manager. If the realization of Loading and Unloading services has been verified and is appropriate, validation will be carried out.

d. Pre-Note

The pre-Note process is carried out when the realization process has been verified anddeclared complete. The Pre-Note summarizes costs from the realization of loading andunloading services and costs for using equipment other service personnel. The printed notes are checked, signed, and ratified by local officials according to branch class.

The requirements that must be fulfilled in applying for loading and unloading servicesinclude a letter of request for ship arrival, a letter of approval for sailing, a letter of measurement for the ship, a letter of request for loading and unloading services, and a list of goods manifests, bill of lading, cargo notification.

3. METHOD

3.1 Place and Time of Research

This research was conducted at PT Pelabuhan Tanjung Priok Branch Cirebon. This research was carried out from April to September 2023.

3.2 Data Types and Sources

This research at PT Pelabuhan Tanjung Priok Branch Cirebon is qualitative, so the research data sources are classified into:

a. Source person / Informant

In qualitative research, the resource person is the owner of the information or subject being studied. And for this research, the resource person are the related agencies that using this port and some of employees that support this system.

b. Event or Activity.

This Aspect is obtained from observations regarding the problem being studied directly.

c. Documents and Archives.

d. Research sites.

3.3 Data Analysis Stage

Methods and data analysis aim to explain all the data collected, present it systematically, and then process, interpret, and make sense of it. Data analysis is a problem-solving effortin research to obtain answers to the issues being studied. This research is explained qualitatively, namely with a SWOT analysis using the IFAS (Internal Factors Analysis Strategy) matrix, which describes the strengths and weaknesses of PTOS-M, and the EFAS (External Factor Analysis System) matrix, which describes opportunity and threat factors. The process of preparing a planning strategy goes through three stages:

3.3.1 Data collection stage

Observation

Observation is a direct observation of an object in the environment whether it is ongoing orstill in a stage which includes various attention activities towards a study of an object usingsensing. And is an action carried out consciously and in sequence. The observation used inthe research is participatory observation. Researchers are involved with daily activities. In this case, researchers

looked at and studied PTOS-M (Pelindo Terminal Operation System-Multipurpose) which was implemented within the company [14].

Interview

An interview is communication between two or more parties which can be done face to face where one party acts as an interviewer and the other party as an interviewee to get answers.In this research, the interview technique used was a structured interview, data collection had prepared research instruments in the form of written questions with alternative answers prepared, respondents were asked the same questions and then recorded the data [15].

3.3.2 Analysis stage

The analysis process is understanding all the information in a case, analyzing the situationto out what issues are occurring. The overall case analysis is as follows:

Stage 1: Understand the situation and existing information

Stage 2: Understand the problems that occur. Both general and specific problems

Stage 3: Creating various alternatives and providing various alternative problem solutions

Stage 4: Evaluate the best opinion by giving a weight and score to each alternative and stating possibility that it will occur.

The process analysis uses several methods, namely; (a) Descriptive qualitative, this methodis a method that operates on a simple qualitative approach. (b) Internal Factor Analysis Summary (IFAS) is an analysis tool that provides the company's internal conditions to determine its strengths and weaknesses. (c) External Factor Analysis Summary (EFAS), ananalysis tool Provides the company's external conditions that can determine opportunities and threats.

3.3.3 Decision return stage

This decision is made using SWOT analysis. SWOT analysis is a tool used to compile a company's strategic factors, namely the SWOT matrix. This matrix can cleary describe theexternal opportunities and threats faced and also the internal strengths and weaknesses. Thismethod also shows the quadrant's position of PTOS-M which determines how influential this system is.

4. RESULTS AND DISCUSSION

4.1 SWOT analysis of PTOS-M

This analysis was produced based on the results of interviews with employees of PT Pelabuhan Tanjung Priok Branch Cirebon who used PTOS-M directly and also as well as service users. In carrying out an analysis related to PTOS-M (Pelindo Terminal Operation System-Multipurpose) of port services using an approach in the form of a SWOT analysis,namely: (1) Strengths: (a) Integrated with the service users (b) Monitoring Loading and Unloading in real-time (c) More optimal service (d) All company activities are in one system (e) The system is easy to use.

Strengths are the advantages of PTOS-M, which can influence the effectiveness of port services. (2) Weaknesses: (a) Human resources are not easy to adapt (b) The system experiences bugs (c) The system is not integrated properly with the field team (d) High costs for system implementation (e) PTOS-M is not running optimally. Weaknesses are limiting factors that can hinder the effective performance of the system. (3) Opportunities:

(a) Increasing global competitiveness (b) Developing employee skills in the field of technology (c) Reducing lost income (d) Minimizing receivables (e) Realizing a paperless office. Opportunities are important profitable situations in the Company's environment withthe implementation of PTOS-M. (4) Threats: (a) Trucks are not monitored (b) Hacking by other parties (c) Service is disrupted when the system

is down (d) Illegal misuse of the system (e) Human Error. Threats are the prominent disruption to the functioning of the system. This is a SWOT analysis of PTOS-M used by PT Pelabuhan Tanjung Priok BranchCirebon. By preparing the implementation of this SWOT strategy, the company can guide the direction so that the implementation of this system runs more optimally, firmly and systematically in achieving company goals with the implementation of PTOS-M.

4.2 EFAS and IFAS analysis of PTOS-M

After grouping the strengths, weaknesses, opportunities, and threats of PTOS-M, they willbe analyzed using SWOT. Apart from paying attention to the factors above, from strengths,weaknesses, opportunities, and threats, an Internal Factor Analysis Stratey (IFAS) and External Factor Analysis Strategy (EFAS) can be prepared to find out how influential PTOS-M at PT Pelabuhan Tanjung Priok Branch Cirebon.

The IFAS matrix is used to determine the role of internal factors in PTOS-M (Pelindo Terminal Operation System-Multipurpose). The IFAS matrix determines the strengths andweaknesses of a company.

Tabel 1. Internal Factors Analysis Summary (IFAS)

No	Internal Factor Strategy	Weight	Rating	Weighted Score
	Strengths (S)			
1	Integrated with the service users	0,23	4	0,91
2	Monitoring Loading and Unloading in real-time	0,14	4	0,56
3	Service becomes more optimal	0,21	3	0,63
4	Integrated in one system	0,23	4	0,91
5	The system is easy to use	0,19	4	0,77
	Subtotal	**1**		**3,8**

Tabel 2. Internal Factors Analysis Summary (IFAS)

No	Internal Factor Strategy	Weight	Rating	Weighted Score
	Weakness (W)			
1	Human Resources are not easy to adapt	0,24	1	0,24
2	The system has a bug	0,13	1	0,13
3	The system is not integrated properly with the field team	0,24	2	0,48
4	High coasts for system implementation	0,24	2	0,30
5	PTOS-M is not running optimally	0,15	2	0,30
	Subtotal	**1**		**1,6**
	TOTAL SCORE (S-W)	**1**		**2,2**

Tabel 3. Internal Factors Analysis Summary (IFAS)

No	Eksternal Factor Strategy	Weight	Rating	Weighted Score
	Opportunity (O)			
1	Increasing the competitiveness of ports globally	0,22	4	0,88
2	Develop employee skills in the field of technology	0,22	3	0,66
3	Reduced lost income due to data recording errors	0,14	3	0,41
4	Minimize receivables	0,22	4	0,88
5	Realizing a paperless office	0,20	3	0,61
	Subtotal	**1**		**3,4**

Tabel 3. Internal Factors Analysis Summary (IFAS)

No	Eksternal Factor Strategy	Weight	Rating	Weighted Score
	Threats (T)			
1	Truck is not monitored	0,08	4	0,17
2	Hacking by other parties	0,27		
3	Service is disrupted when the system is down	0,25	3	0,27
4	Illegal misuse of the system	0,13	3	0,50
5	Human error	0,27	4	0,13
			3	0,54
	Subtotal	**1**		**1,6**
	TOTAL SCORE (O-T)	**1**		**1,8**

1.4 External Factors Analysis Summary (EFAS)

In the table above, the strength factors have a score of 3.8, while the weakness factors havea score of 2.2, meaning that PTOS-M has higher strengths than the weakness factors, so thepresence of PTOS-M has a good effect on the company. Furthermore, the opportunity factorhas a score of 3.4, and the threat factor has a score of 1.6; this means that in implementingPTOS-M, there are quite large opportunities compared to the threats that arise.

From the results of the arrangement of internal and external factors above, the following series of scores are produced: Strengths (3.8), Weaknesses (2.2), Opportunities (3.4), and Threats (1.6). Based on the score, which shows that strength is greater than opportunity, theresults appear in the following diagram:

Jurnal Logistik Indonesia Vol. 8, No. 1, April 2024, pp. 42-54

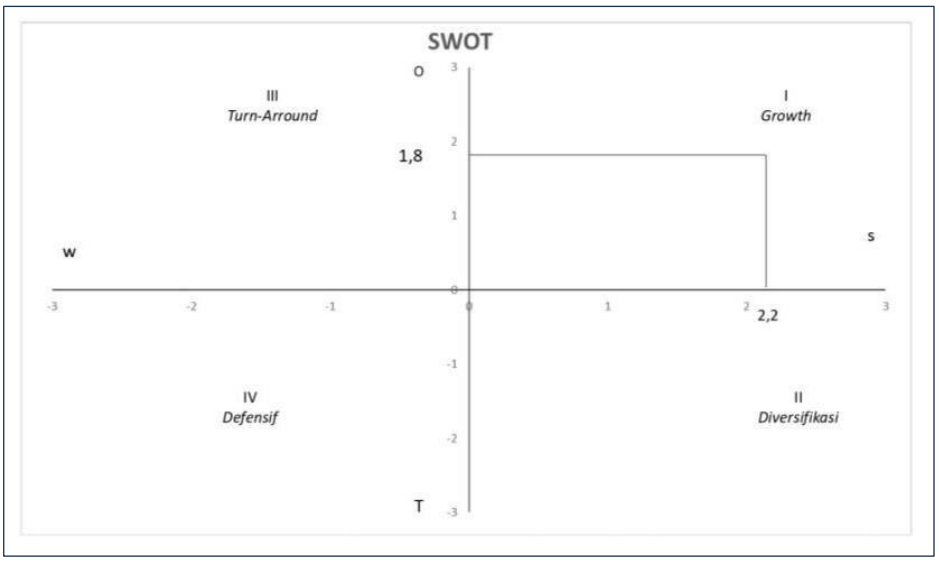


Figure 1. Diagram of SWOT Quadrant

Based on the diagram above, the analysis results are in Quadrant I. In quadrant position I explains that PTOS-M has great strengths and opportunities. This condition supports aggressive port services (growth-oriented strategy). A growth strategy is designed to achievegrowth in asset sales, profits, or a combination of the three. This can be achieved by reducing prices, developing new products, increasing the quality of products or services, orincreasing access to a wider market. Efforts can be made to minimize costs so that profits can be increased. (Rangkuti, 2008). There is no possibility that this system will continue to be improved so that all branches of PT Pelabuhan Tanjung Priok use this system.

IFAS / **EFAS**	**Strength (S)**	**Weakness (W)**
	1. Integrated with customers 2. Monitoring Loading and Unloading in real-time 3. Service becomes more optimal 4. Integrated into one system 5. The system is easy to use	1. Human Resources are not easy to adapt 2. The system has a bug 3. The system is not integrated properly with the field teams 4. High coasts for system implementation 5. PTOS-M is not running optimally

Figure 2. Diagram of Strength & Weakness

Jurnal Logistik Indonesia Vol. 8, No. 1, April 2024, pp. 42-54

Opportunities (O)	**Strategi SO**	**Strategi WO**
1. Increasing the competitiveness of ports globally 2. Develop employee skills in the field of technology 3. Reduced lost income due to data recording errors 4. Minimize receivables 5. Realizing a paperlessoffice	1. Improving quality service 2. Carry out regular outreach to users regarding the use of thissystem 3. Supporting companies in realizing a paperless office	1. Accompany Human Resources who are still adapting to the system 2. Improve infrastructure to optimize it Added PTOS-M mobile version to support operations
Threats (T)	**Strategi ST**	**Strategi WT**
1. Truck is not monitored 2. Hacking by other parties 3. Service is disrupted when the system is down 4. Illegal misuse of the system *5. Human Error*	1. Optimizing PTOS-M so that by digitalizing Cirebon port can increase competitiveness 2. Respond quickly if problems occur with the system 3. Improve information system security	1. Coordinate with the control room team so thatthe truck remains monitored 2. Provide training to employess to reduce the level of errors that occur when using the system. 3. Have a backup plan if there are problems with the system so that service activities do not stop.

Figure 3. Table Matrix SWOT

The SWOT matrix is used to formulate strategies by combining strengths, weaknesses, opportunities and threats. In the SWOT matrix, four strategies are produced, namely SO, WO, and WT. The explanation is as follows:

Matrix SWOT analysis for SO Strategy

To see the strength used to take advantage of the opportunities that PTOS-M has in the company by improving quality services, carry out regular outreach to users regarding the use of this system, supporting companies in realizing a paperless office.

Matrix SWOT analysis for WO Strategy

From the weaknesses of PTOS-M, strategies can be developed to minimize existing weaknesses so that companies can take advantage of opportunities such as accompany human resources who are still adapting with the system so that it becomes an opportunity for employees to develop technology skills.

Matrix SWOT analysis for ST Strategy

PTOS-M threats can come any time by using strength to overcome the threat, namely by doing improve information system security, respond quickly if problems occur with the system so that the services can still run.

Matrix SWOT analysis for WT strategy

The weaknesses and threats that exist in PTOS-M can be minimized internal weaknesses to avoid external threats such as coordinated with the control room team so that the truck remains monitored, provide training to employees to reduce the level of errors that occur when using the system.

5. CONCLUSION

Based on the results of data analysis and discussions with the employees of PT Pelabuhan Tanjung Priok Branch Cirebon. Some conclusions that can be made from the research findings:

1. Implementation of PTOS-M (Pelindo Terminal Operation System- Multipurpose) is Quadrant I which means it is very influential on the company. The most impact is the increase in service because it is integrated in one system and can be monitored in real time. In addition, the implementation of the system can reduce receivables by 20% as of May 2023 to September 2023.
2. In the implementation of PTOS-M, there are still some obstacles, especially in Human Resources. Human Resources is the factor that is most vulnerable to changes. Both changesin orientation, interests and academic perspectives. Therefore, the company needs to monitorfor development so that human resources can support the implementation process.
3. Facilities in the harbour are not yet complete, in this implementation process, it is necessaryto add facilities to complete the system infrastructure, which is expected to facilitate the running of PTOS-M. If the infrastructure is complete the digitalization process can run more optimally.

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