

SWOT APPLICATION ON DETERMINING SHIP YARD DEVELOPMENT STRATEGIES: A CASE STUDY

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ABSTRACT

Sea transportation is a major factor connecting the islands of Indonesia which has strategic and important value in supporting the sustainability of the national economy. Along with the government's policy on the sea highway program and the development of the domestic shipping industry, the growth of the commercial fleet, especially vessels, is currently experiencing rapid progress. In supporting the government program and the demand for reparation and procurement of new ships in domestic production, readiness is required from the shipyard. However, the current condition of the shipyard is only able to meet 83% of the demand for new shipbuilding so that the shipyard still needs to be developed in order to improve its capabilities, so that it can meet the needs and be able to carry out its functions in accordance with the progress of shipping technology. In this study discusses the strategy of developing shipbuilding using qualitative descriptive methods and quantitative SWOT analysis. In this case study shipyard development strategy by increasing the ability of shipyards to meet the demands of ship building by increasing supporting facilities and accompanied by increasing the ability of human resources in the mastery of science and technology. Besides also by conducting cooperation with the domestic shipping industry in the procurement of supporting parts

Keywords: *Shipyard, Maintenance, SWOT Analysis, Developmen Strategy*

1. INTRODUCTION

The territory of Indonesia consisting of thousands of islands reaches 17,480 and most of them consist of seas reaching 5.9 million Km² (C.S. Marnani, 2016). According to (Lasabuda, 2013) the length of the Indonesian coast reaches 95,161 Km is the second longest beach after Canada. Seeing the condition of Indonesia in the form of an archipelago so that it requires the role of the sea transportation sector as a supporter of economic drivers. Sea transportation is the main factor connecting the islands in Indonesia to meet the criteria to support industrial activities and other services. So that the role of sea transportation has strategic and important value in supporting the sustainability of the national economy. The fleet of ships as a means of sea transportation plays a very dominant role, this must be supported by the ability of domestic shipyards to maintain the readiness of ships to be able to carry out operations and be eligible to sail.

The development of the national commercial fleet is experiencing very rapid development. In 2005 the number of commercial fleets reached 6,041 units and increased to 12,604 units in 2013 or increased by more than 100% or 6,563 units (Sudirman Habibie, 2015). The number of ships sailing in Indonesian waters reached 41,365, this can be a challenge for the shipyard industry in carrying out maintenance and repair of ships so that they remain seaworthy (Febriansyah, 2017). In 2017, data on the number of shipbuilding orders in Indonesia reached 218,300 gross tonnages (GT). The majority of ship construction is to meet the

needs of the domestic market by 83 percent, which is estimated to reach 120 units or 135,440 GT. Meanwhile, the rest is for export, around 24 units or 82,860 GT.

Shipyard is a building on the shore or water that has a function to carry out shipbuilding of new buildings as well as maintenance, maintenance, repair of old building ships. The potential of a large shipyard business has not been put to good use by shipyard managers. Evidenced by the existence of undeveloped shipyards but inversely proportional to the number of ships that are increasing every year. Shipyard is demanded to continue to improve its performance so that it can operate well and efficiently. In shipbuilding projects it is necessary to transfer knowledge to the development process, especially in the major shipbuilding phase. However, it is often found that knowledge in the shipbuilding industry is largely based on individual experience and perception (Hans Solli, 2012).

To maintain the readiness of ships to carry out operations at sea, necessary measures of maintenance and repair of ships regularly and continuously, which is the duty of the shipyard company. In other words every ship or equipment requires maintenance, repair and overhaul (MRO). In implementing an MRO, cooperation between ship owners and creative industry players engaged in shipping is needed. Thus the owner of the ship or the crew does not need to do their own repairs but submitted to the relevant parties.

In this study arranged as follows, the first chapter introduction, chapter II shows the material

and methodology, chapter III shows the results of the data and discussion, chapter IV conclusions

2. MATERIALS AND METHODS

2.1 Strategy Management

Strategy management is a series of decisions and managerial actions in determining the direction of a company's performance over the long term, including observing environmental observations, formulating or planning strategies, implementing evaluations and implementing the strategies themselves. (J. David Hunger, 2003) Strategic Management also means the process of observing and analyzing the internal and external environment to plan, implement and observe strategies (Charu Shri, 2015). Strategic management can also be interpreted as the art and science of formulating, implementing, and evaluating decisions to achieve the goals of a company. Such a definition implies that strategic management focuses on the integration between management, marketing, finance, production, research and development, and information systems to achieve company success (David, 2011).

The Security Strategy is carried out to determine the risks and threats faced and what actions and steps must be followed in the event of an attack, to minimize the effect and capture the attacker (Nastasiu, 2016). Whereas (Hunger & Wheelen, 2010) explained that strategy management is a series of managerial decisions and actions that determine performance in the long run. Strategy management includes environmental observation, strategy formulation (strategic planning or long-term planning), strategy implementation, and evaluation and control. Strategy management emphasizes the observation and evaluation of environmental opportunities and threats by looking at strengths and weaknesses.

2.2 SWOT Analysis

SWOT is one of the most popular strategies aimed at identifying organizational strengths and weaknesses and opportunities and threats in the environment (X.P. Wang*1, 2014). To understand and evaluate the current position used analysis in terms of strengths, weaknesses, opportunities, and threats in an organization, company, project or business speculation (Rangkuti., 2012). To identify internal and external factors that have an influence or not in achieving the expected goals, swot analysis is used by involving the specific goal direction of business or project speculation. SWOT analysis is a systematic analysis based on looking at strategic situations by diagnosing factors from an internal and

external environmental perspective. However, this raises criticism because it tends to be used as a stand-alone tool so that it is often used in an unsystematic way, because it relies on subjective intuition, keeps away from quantification, and has no predictive power. This is what the retrospective approach means to define the perception of current events in an effort to be forward-looking, if not predictive.

2.3 Determination of IFAS and EFAS Matrix

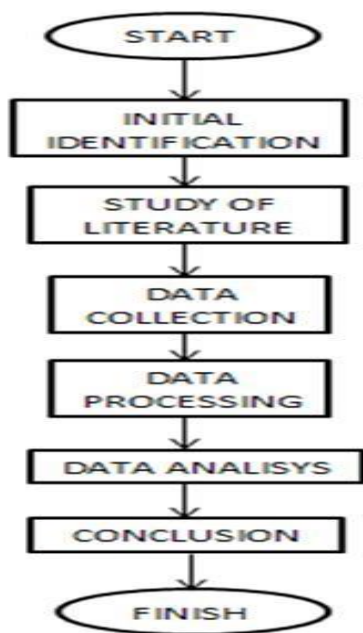
After knowing internal and external factors and identified, then the data is processed and arranged into an IFAS and EFAS table. To formulate the internal strategy factors within the framework of Strength and Weakness. Whereas external strategic factors are included in the framework of Opportunities and threats. From the respondents' questionnaire data, the identification of each variable is then ranked according to ranking or rated using the numbers 4 (good), 3 (good enough), 2 (not good) and 1 (bad). Then after that we determine the weights of each variable based on the results of a comparison of ratings by rating compared to the total rating of all variables in the table, the sum of all weights is 1.0.

2.4 Maintenance

In the industrial world, the level of damage to production machinery is one of the problems on the production floor. This will affect the company's profits where profit can not be maximized because of increased production losses and maintenance costs (R. Ahmad, 2011). Maintenance plays an important role in achieving the goals and objectives of the organization. Because it contributes to reducing costs, minimizing equipment damage, increasing quality, increasing productivity, and providing reliable, safe and well-configured equipment to achieve goals. In addition, maintenance systems play an important role in minimizing equipment life cycle costs (Duarte José Caldeira, 2007).

2.5 Framework for Thinking

From the description above it can be seen that to develop a shipyard, it is necessary to consider the internal and external factors of the shipyard. So we will get a strategy of developing shipyards that are able to compete with foreign shipyards.



This study aims to provide an analysis of the importance of shipyard development strategies in supporting government programs on the empowerment of the shipping industry in the cloudy national economy. This research step is step 1 examines the current shipyard conditions, step 2 conducts an analysis of internal and external factors, step 3 provides a conception of shipyard development strategies, step 4 provides conclusions

3. RESULTS AND DISCUSSION

Internal-External Environmental Identification (IE), Through IE Matrix, Internal analysis is carried out to get the strength factor to be used and the weakness factor to be anticipated. To evaluate it, the IE (Internal-External) evaluation matrix is used. Following are the results of environmental analysis. Important points that can be drawn from the results of the analysis affect the strategic decision making. These influential factors are summarized in Table 1.

Table 1. Factors Affecting Decision Making

NO	Factors Affecting
1	Shipbuilding capability
2	Customer certainty
3	Availability of Human Resources
4	Spare part depends on the supplier
5	Workshop facilities are limited
6	Weak competitiveness
7	Strategic position
8	Implementation of government policies about the shipyard empowerment industry
9	Domestic shipbuilding demand
10	Technology demands in the shipping industry
11	High banking interest rates

From the decision-making point is then processed into the SWOT matrix table by entering these points into a group of internal factors in the position of strength (strength) or weakness (Weakness), and also into an external factor in the

position of opportunity (Opportunities) or treats (threats) according results obtained from respondents. The position of these points can be seen in Table 2.

Table 2. SWOT matrix

Internal / Eksternal	Strength	Weakness
	<ul style="list-style-type: none"> • Customer certainty • Availability of Human Resources • Shipbuilding capability 	<ul style="list-style-type: none"> • Spare part depends on the supplier • Workshop facilities are limited • Weak competitiveness
Opportunity	SO Strategy	WO Strategy
<ul style="list-style-type: none"> • Strategic position • Implementation of government policies about the shipyard empowerment industry • Domestic shipbuilding demand 	Make a strategy by optimizing the power to take advantage of opportunities	Make a strategy by minimizing weaknesses to take advantage of opportunities

Treats	ST Strategy	WT Strategy
<ul style="list-style-type: none"> • Technology demands in the shipping industry • High banking interest rates 	Make strategies by optimizing strength to overcome threats	Make strategies by minimizing weaknesses and overcoming threats

From the results of grouping each factor into a SWOT matrix, then weighting is done by internal factor (IFE) and external factor (EFE). From the

questionnaire results of the respondents, it was weighted using 1 to 4.

Table 3. Internal Evaluation Factors

Strenght	Rating	Weight	Skor (rating x Weight)
Customer certainty	3	0.37	1,11
Availability of Human Resources	4	0.42	1,68
Shipbuiding capability	3	0,31	0.93
Total		1,00	3,82
Weakness			
Spare part depends on the supplier	3	0,3	1,5
Workshop facilities are limited	4	0,5	2,0
Weak competitiveness	3	0,2	0,6
Total		1,00	4,1

Table 4. External Evaluation Factors

Opportunity	Rating	Weight	Skor (rating x Weight)
Strategic position	4	0.43	1,72
Implementation of government policies about the shipyard empowerment industry	3	0.37	1,11
Domestic shipbuilding demand	3	0,20	0,6
Total		1,00	3,43
Treat			
Technology demands in the shipping industry	3	0,5	1,5
High banking interest rates	3	0,5	1,5
Jumlah		1,00	3,0

From the results of processing table 3 IFE and table 4 EFE is used to determine the position of the strategic quadrant by entering into the score table by placing the Strenght (S) and Weakness (W) values in the Internal column, the difference

between (S) and W as the X axis. For Opportunity (O) and Treats (T) values are placed in the external column, the difference between O and T is the value on the Y axis. In Table 5 we can find that the X-axis value is -0.18 and the Y-axis value is 0.43.

Table 5. Quadrant Processing

Internal (X)	Value	Eksternal (Y)	Value
Strenght	3,82	Opportunity	3,43
Weaksness	4,10	Treats	3,00
Difference in Values	-0,28		0,43

From the difference in value in table no.5 then we enter the strategy quadrant to determine the

strategy, so we can analyze what strategies are appropriate to be used in problem solving.

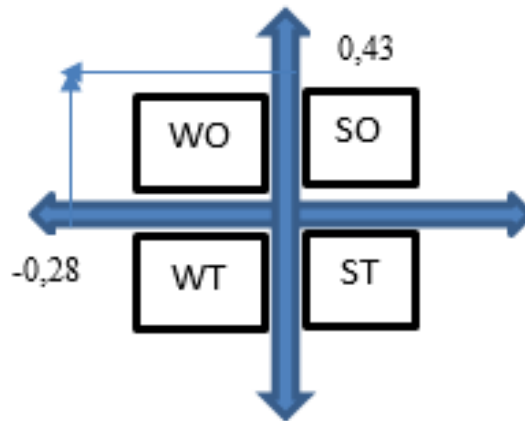


Figure 2. Quadrant strategy

From this figure, the position of the strategy is in the WO quadrant, this means that the WO strategy used to solve these problems is by minimizing the existing weaknesses to seize opportunities

4. CONCLUSION

From the results of the discussion it can be concluded a strategy for the development of the shipyard by increasing the ability of the shipyard to meet customer demands in ship building by increasing supporting facilities and accompanied by increasing the ability of human resources in the mastery of science and technology by conducting training training, courses. Besides also by reducing dependence on overseas spaepart procurement by establishing cooperation with the domestic shipping industry.

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