

# ANALYSIS OF THE ROLE OF CODIFICATION TO SUPPORT THE PLANNED MAINTENANCE SYSTEM (PMS) THE MAIN TOOL OF THE NAVY WEAPONS SYSTEM

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## ABSTRACT

The material codification system is deliberately designed to realize effectiveness and efficiency in providing defense logistics support and facilitate better management of equipment and supplies materiel data. The main tool of the navy weapons system consisting of ships, aircraft, marines and bases including personnel who manned. The preparation of adequate logistical support it, will have an impact on the readiness of the main tool of the navy weapons system in carrying out its duties and functions. This research aims to improve the implementation of codification embodied in the completeness of the Material Basic Book (MBB) in The main tool of the navy weapons system so that it will support the preparedness of the Navy in carrying out operations and exercises. To examine the above problems, identification is needed to answer the current problem by using swot analysis method approach. In this approach, the right decision is also done in making decisions using SWOT matrix calculations that can produce the best strategy formulation by providing weight and rating values from internal and external factors against four quadrants so that it is known that the result is in quadrant III which supports turn around strategy with a difference between strength and weakness of 1 while the odds and threats are 2.62.

**Keywords:** Codification, Supply, and SWOT.

## 1. INTRODUCTION

"One of the main tasks of the Navy is to uphold sovereignty and law in the waters of national jurisdiction with the configuration of an island nation whose two-thirds of the territory is the sea. The configuration of such areas resulted in the high demand for the readiness and preparedness of the Navy units to carry out operations and exercises, therefore the role of logistics became very decisive in the successful implementation of the Navy Task Force" (Kasal, 2010)

Good Logistics Management will be able to improve the effectiveness and efficiency of logistics support. The use of Codification System in logistics management has several operational and economic benefits, namely in terms of standardization of equipment. Identifying an Item is a very important part of the material Identification System because in this section will be explained how to establish one unique identification for each supply so as to provide

an overview of the important characteristics of an item so as to distinguish from each supply, because each Item has only one identification of the Goods.

NATO Codification System (NCS) is a uniform and simple system for the identification, classification and numbering of supplies (stock) for Materiel Logistic. NCS is a program that allows components and spare parts, especially military needs, to be uniformly named, grouped/classified, and assigned a National Preparation Number (NSN). NSN along with data on goods/items are published in the supply catalog and list of repair parts and used as identification keys in the Logistics Information System. Naval supply center as echelon of supply implementation is tasked in handling all codification of supplies in the Navy. Real form in simplifying the process of codification of all The main tool of the navy weapons system that is by making a manual book namely Material Basic Book (MBB) that can facilitate the request process and in terms of

maintenance of the main tool of the navy weapons system. Material Basic Book (MBB) is defined as a basic document of supply containing technical and logistical data of a unit of users, to be used as a basis in determining the needs, demands and control of the supply inventory of the user unit, thus the Material Basic Book (MBB) is used as a basic reference in operationalizing the supply system in the Navy. The main parts of MBB are User Unit Equipment Configuration List (UUECL), Equipment Catalog (EC), Spare Parts Supply List (SPSL), Inventory Supply List (ISL), and Cross Reference List (CRL) is an integral and integral series.

Departing from the limitations in the resources of researchers trying to solve the problems faced in the process of codification of The main tool of the navy weapons system namely the fulfillment of the Material Basic Book (MBB) as a manual book of each the main tool of the navy weapons system so as to help the process of maintenance and demand its. In fact, researchers have found 3 main problems, namely the number of personnel who are still lacking, infrastructure facilities that are not optimal and coordination between institutions that are not optimal. By identifying the 3 problems, we can find out what should be considered for improvement, as the first step is to formulate a policy that is outlined in detail in the process of a strategy and efforts to deal with some obstacles faced in the field at that time.

## **2. LITERATUR REVIEW**

### **2.1. Development Strategy Theory**

Development strategy is an action that demands the decision of the top management in business development to realize it. Development Strategies also affect the life of the organization in the long term because the nature of the development strategy is oriented to the future (Afridhal, 2017) (Amalia, Hidayat, &Budiatmo, 2012).

Development strategy has a function of formulation in considering internal and external factors faced by the company. Strategy formulation includes developing the vision and mission of an effort, identifying external opportunities and threats of the organization, determining the internal strengths and weaknesses of the organization, setting long-term goals of the organization, creating a number of alternative Strategies for the organization, and choosing specific Strategies to use (Wheelen &Hunger, 2010).

### **2.2. Material Codification Of National Preparation Number System (NSN)**

The concept of material cataloguing system, by creating a unique code or numbering, on Materiiil logistic (Item of Supply) the main tool of the navy weapons system, with the intention of managing the existing materiiil / supply, and can draw up a plan of supply needs for ordering supplies properly and quickly so as not to occur demand to Zero (Out of Stock). Improvements to the NSN system continue to be made, including the updating of material data, reference books / instructions continuously until now, by utilizing electronic data processing technology (computer), the updating of material data can be done quickly and distributed quickly to all countries of NCS system users in the world, with the intention of uniformity in identifying materiiil, such as setting the default name, stating material descriptions, characteristics, material usability, and many other data. With the continued increase of The main tool of the navy weapons system coming from abroad, and dependence on the re-provision of spare parts in the manufacturer country still remains, as well as the rapid growth of industry in Indonesia, where some of their products also support the State Defense Logistics, the need for material cataloguing of NSN systems becomes very important, to be able to go to a modern and effective defense logistics system, therefore the material cataloguing of NSN systems

in Indonesia can no longer be just a user, but has increased to become a participant in the union of countries that are users of cataloguing NSN systems in the world.

### 2.3. SWOT Analysis

SWOT analysis can be applied by analyzing and sorting out the various factors that affect the four factors of strength, weakness, opportunity, and threat, then applying them in the SWOT matrix image. In the positioning of an organization there are the following provisions:

Quadrant I : It is a very favorable situation because it is in a position of equal strength and opportunity. The strategy that should be applied to this condition is to support aggressive growth policies.

Quadrant II : Despite facing various threats, this position still has internal strength. The strategy that must be implemented is to use force to minimize long-term threats with a diversification strategy.

Quadrant III : Is a condition has a very large chance, but on the other hand face internal constraints / weaknesses.

Quadrant IV : This condition is an unfortunate situation because it has various internal weaknesses and faces various threats.

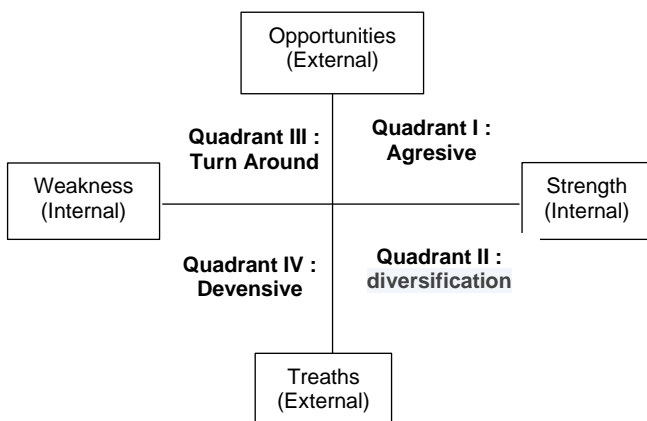


Figure 2.1 SWOT Analysis Diagram Source: (Rangkuti, 2018)

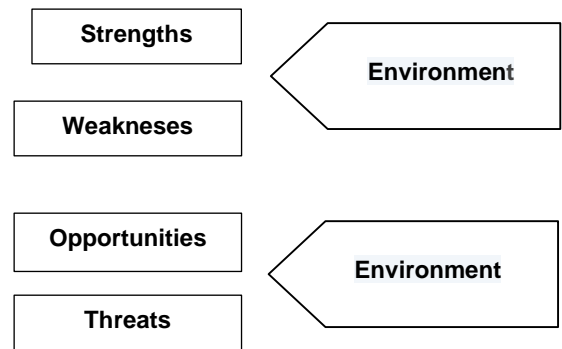


Figure 2.2 Schematic of Source SWOT Stages (Rizal, 2015)

### 3. RESEARCH METHODS

In this research process the authors used a mixed approach that is qualitative and quantitative. This research is presented with descriptive and figures, ranging from data collection, processing of data and the appearance of the results. This research was conducted in four stages, namely the preliminary stage, data collection, data processing, analysis and the last Stage of Conclusion and Advice. Shown in the flow chart as follows:

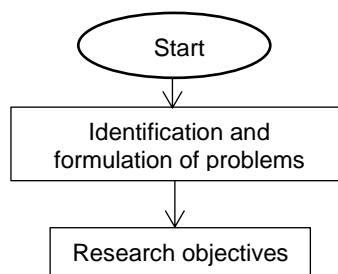


Figure 3.1 Research Flowchart

In the preliminary stage consists of Problem Identification, Determination of research objectives, Literature Studies, Field Studies. At the stage of data collection, namely data that supports the process of data processing. At the stage of data processing is carried out Matrix calculation steps by giving weight value and rating first. At the analysis stage, the analysis of the calculation results that have been contained in the quadrant will be used as an option of Strategies and efforts in completing the compounding. At the conclusion stage, conclusions were drawn from the research that has been done as well as suggestions for further research related to this research.

#### **4. RESOURCE AND DISCUSSION**

Strategies that are derivatives of the policy, can be prepared to provide certainty or assurance that all existing problems will be answered by considering the factors of opportunity and constraints (threat) and using the capital strength (strength) and weaknesses (weaknesses) of logistical support that have been identified in the discussion of current conditions by paying attention to the indicators of success. SWOT analysis is used to identify Strategies to be formulated.

##### **4.1 Internal and External Weight Calculations and Analysis**

Table 4.1 and Table 4.2 result of calculation of internal and external factor weights. Table 4.3 presents the Internal Matrix of Summary Analysis Factors (IFAS) and the External Matrix of The Summary Analyst Factor (EFAS). From the results obtained in Table 4.3 on internal factors strengths and weaknesses get the total calculation of each indicator with a strength weight value of 0.55 and a total score of 3.86 and at weakness get a total weight value of 0.45 and a score of 1. Internal factor analysis using efas table is used to formulate external strategy factors of analysis results in terms of opportunities, threats to wei

external factors opportunities and threats get a total calculation of each indicator with a chance weight value of 0.52 and a total score of 3.56 and on threats get a total weight value of 0.48 and a score of 0.94.

#### Formulation of Internal Factors

After the existing data is collected, internal factors are formulated through questionnaire filling by stakeholders as seen in table 4.1.

#### Formulation of External Factors

As in the formulation of internal factors, the next step is calculating weighting based on stakeholder assessment to obtain the classification of opportunity Threat) as seen in table 4.2.

Table 4.1 Calculation of Internal Factors

NO	INTERNAL FACTORS	WEIGHTS	RATING	SCORE WEIGHTS
	<b>POWER</b>			
1	Sub Codification is a special unit that handles the codification and cataloguing of the Navy	0.1	9	0.9
2	Personnel capabilities in the MBB manufacturing process	0.09	8	0.72
3	Course implementation Kataloger Specifications	0.08	5	0.4
4	Supporting facilities and infrastructure	0.1	6	0.6
5	Good network connection	0.07	6	0.42
6	Up date and Up grade soft ware support/program from Kemhan Codification Center	0.06	7	0.42
7	Soft ware and hard ware support	0.05	8	0.4
	<b>TOTAL</b>	<b>0.55</b>		<b>3.86</b>
	<b>WEAKNESS</b>			
1	The number of personnel is not yet DSP compliant	0.1	1	0.1
2	Some kataloger qualified personnel	0.08	3	0.24
3	Delayed proposal of supporting facilities and infrastructure	0.07	3	0.21
4	A network connection has been disrupted	0.06	3	0.18
5	Workload in the manufacture of MBB All The main tool of the navy weapons system	0.05	2	0.1
6	Interference occurs on up date and up grade soft ware support/program	0.04	3	0.12
7	The Need for Coordination With Relevant Stakeholders	0.05	1	0.05
	<b>TOTAL</b>	<b>0.45</b>		<b>1</b>

<b>TOTAL IFAS</b>	<b>1</b>	<b>4.86</b>
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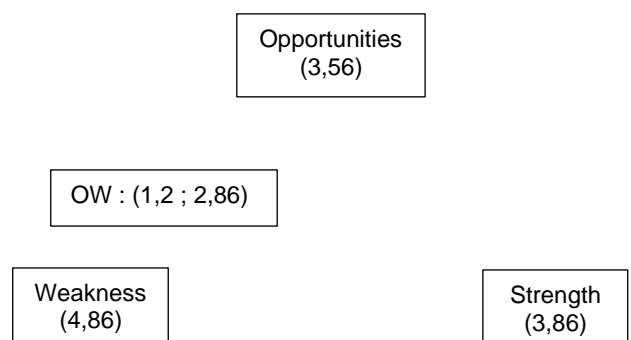
Table 4.2 Calculation of External Factors

NO	EXTERNAL FACTORS	WEIGHTS	RATING	SCORE WEIGHTS
<b>OPPORTUNITIES</b>				
1	Conducting cooperation with The Center for Codification in the Ministry of Defense for coding	0.12	7	0.84
2	Carrying out kataloger course cooperation	0.11	8	0.88
3	Support facilities and infrastructure from The Center for Codification in the Ministry of Defense in collaboration with Dislogistic	0.1	7	0.7
4	Technological advancements for the development of codification and cataloguing	0.09	6	0.54
5	Budget support in the socialization of The main tool of the navy weapons system Codification	0.1	6	0.6
<b>TOTAL</b>		Total		<b>3.56</b>
<b>THREAT</b>				
1	Completeness of supporting document books on the manufacture of MBB The main tool of the navy weapons system	0.1	2	0.2
2	Implementation of validation to Satkai that has not been optimal	0.09	3	0.27
3	Fulfillment of personnel according to DSP	0.11	1	0.11
4	MBB completeness requirements for The main tool of the navy weapons system are not included in the procurement clause	0.08	2	0.16
5	Up date and Up grade soft ware support/program from Paid Pengada	0.1	2	0.2
<b>TOTAL</b>		Total		<b>0.94</b>
<b>TOTAL IFAS</b>		<b>1</b>		<b>4.5</b>

#### 4.2 Cartesius Swot Analysis Diagram

After the identification of the results of internal and external factors, then made into the cartesius diagram of SWOT analysis in Figure 1 which can be from ifas matrix and EFAS matrix. The data input is the total of the multiplication between (rating x bobt). Here's an overview of the matching stages used by the matrix Swot. The following diagram diagrams cartesius SWOT analysis of the role of Codification to support the Planned Maintenance System (SPT) The main tool of the navy weapons system in the Navy

Figure 4.1 Cartesius Diagram of SWOT Analysis of The Codification of The main tool of the navy weapons system TNI AL





3	Carrying out kataloger course cooperation	3	Supporting facilities and infrastructure for smooth work	3	Improve network connection capabilities in supporting tasks
4	Opportunities	4	Improved personnel soft skills to improve quality	4	Coordination with The Center for Codification in the Ministry of Defense and stakeholders related to procurement
5	Conducting cooperation with The Center for Codification in the Ministry of Defense for coding				
	Carrying out kataloger course cooperation		<b>ST Strategy</b>		<b>WT Strategy</b>
1	Support facilities and infrastructure from the Center for Codification in the Ministry of Defense in collaboration with Dislogistic	1	Use funding support as effectively and efficiently as possible for planned activities	1	Manage personnel work to be effective and efficient
2	Technological advancements for the development of codification and cataloguing	2	Carrying out validation and checking the completeness of supporting documents in the field	2	Improving personnel capabilities by carrying out Training in Service (LDD)
3	Budget support in the socialization of The main tool of the navy weapons system Codification	3	Improving personnel capability in the MBB manufacturing process by carrying out courses and Training in Dinas (LDD)	3	Improve network connection capabilities and hard ware and soft ware capabilities
4	Threat	4	Coordinating with the government office in terms of procurement clause The main tool of the navy weapons system to include the manufacture of MBB		
5	Completeness of supporting document books on the manufacture of MBB The main tool of the navy weapons system				

The result of the combination formula of SO, ST, WO, and WT from the IFAS-EFAS factor results in an alternative strategy that gets the highest weight is Weakness–Opportunity (WO). The following are the result of a combination of Strategies that include:

a. SWOT Matrix Analysis for SO Strategy  
To see the power used to take advantage of the opportunities that can form a strategy to improve the integration of information and technology with the center for the codification of the ministry of defense, It's held a specialization course Kataloger according

to its level, Supporting facilities and infrastructure for smooth work, Improvement of personnel soft skills to improve quality.

b. SWOT Matrix Analysis for WO Strategy  
From weaknesses and opportunities can be prepared Strategies to minimize existing weaknesses so as to take advantage of opportunities and determine Strategies by Adding personnel to the appropriate DSP, Conducting courses specialization kataloger according to its level, Improving the ability of network connections in supporting tasks, Coordination with the center for the



codification of the ministry of defense and stakeholders related to procurement.

c. SWOT Matrix Analysis for ST Strategy  
Judging from the strength and threat of using its power to overcome the threat that can come at any time, namely by using the support of funds as effectively and efficiently as possible for the planned activities plan, Carrying out validation and checking the completeness of supporting documents in the field, Improving the ability of personnel in the process of making MBB by carrying out courses and exercises in the Service (LDD), Coordinating with the service in terms of procurement klausal The main tool of the navy weapons system to support the manufacture of MBB.

d. SWOT Matrix Analysis for WT Strategy  
On weaknesses and threats that exist can be minimized internal weaknesses to avoid external threats, namely Manage personnel work to be effective and efficient, Improve personnel capabilities by carrying out Training in Service (LDD), Improving network connection capabilities and hard ware and soft ware capabilities

After performing the SWOT matrix strategy combination then make quantitative model analysis as the basis of the number of score values on each factor in each strategy SO, ST, WO, and WT, here's an overview Quantitative model of strategy formulation in view of Table 4.3. Table 4.3 shows that the role of Codification to support the Planned Maintenance System (SPT) The main tool of the navy weapons system in the Navy needs to utilize opportunities strategy and minimize weakness (WO) which has the highest score of 8.42, then the second rank followed by strength and opportunities (SO) 7.42 and subsequently weakness and treaths (WT) 5.8, the latter strength and treaths (ST) 4.8. The strategy that has the highest value is WO by improving the integration of information and technology with The Center for Codification in the Ministry of Defense , The Center for Codification in the Ministry of Defense held a specialization course Kataloger according to its level, Supporting facilities and infrastructure for smooth work, Improvement of personnel soft skills to improve quality.

**4.4 Proposed Development Strategys**

IFAS	Strength (S)	Weakness (W)
	Strategy SO :	Strategy WO :
Opportunities (O) :	Using Strength to take advantage of opportunity = 7.42	Minimize weakness by taking advantage of opportunity = 8.42
	Strategy ST :	Strategy WT :
Treaths (T) :	Using strength to overcome threats = 4.8	Minimize weakness avoiding threats = 5.8

**5. CONCLUSIONS AND SUGGESTIONS**

**5.1 Conclusion**

From the discussion that has been described and based on the data the writer obtained from the research as discussed, the following conclusions can be drawn :

a. The identifiable factors in the SWOT analysis consist of 14 internal factors and 10 external factors. The internal strength factor has 7 elements. On internal factors weakness consists of 7 elements. Furthermore, the determination of external factors of opportunity consists of 5 factors. On the threat factor has 5 elements of factors.

b. Based on the identification of internal and external factors, the next step is to formulate a strategy based on each aspect. The strategy formulation consists of four parts, namely SO, WO, ST and WT Strategies, each of which consists of three substrates.

After the weighting was obtained the result that the role of Codification to support the Planned Maintenance System (SPT) The main tool of the navy weapons system in the Navy is in quadrant III with the chosen strategy namely WO strategy. The strategy consists of three sub strategies, namely:

- 1) Carry out socialization about the importance of completeness of new The main tool of the navy weapons system documents Carrying out each stage of the planned strategy by utilizing technological developments.
- 2) Conducting careful planning and coordination with the complainant for the involvement of MBB members in the MBB manufacturing process.
- 3) Perform document data validation by checking directly to the mounted aircraft.

## 5.2 Suggestion

Based on the conclusions of this study, the following suggestions can be submitted:

- a. For the development of science on codification, cataloguing, it is conveyed advice to Chief of Naval Supply Center in this case Chief of Sub Codification always carry out continuous coordination to the relevant parties, namely the Center for Codification in the Ministry of Defense of the Republic of Indonesia, in order to always get information updates and immediately be able to make adjustments as needed.
- b. In strategy management there are three stages, namely development, implementation and evaluation. To support the next research is expected to be discussed about the analysis stage of the

implementation of the strategy and the plan of the results of the evaluation of the strategy.

c. In this study, there was one strategy from four selected Strategies. For further research can be used as a reference by discussing alternative Strategies.

d. In this study, it has not been studied about the calculation of costs in the implementation of the strategy. It is necessary that in the next research an analysis of cost calculations and alternative proposals of Strategies is needed if the main strategy cannot be implemented.

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