

# The Application of CBA and SUG Model for Improving The Quality of Indonesian Navy Human Resources

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**Abstract:** Indonesia is a maritime nation with 75 % or 5.8 million square kilometers of its area is covered by the sea, including the Indonesian Exclusive Economic Zone / IEEZ and three Indonesian archipelagic sea lanes; Malacca Strait, Sunda Strait, and Lombok Strait affirm Indonesia as the most strategic geographical position. The Indonesian people feel so pathetic to witness the current condition in Indonesian waters since there are many crimes, especially law violations that occurred in the Indonesian maritime territory that could lead to a prolonged polemic and hampers the efforts to build national unity. Ideally, maritime security should be safely guaranteed, meaning that the sea can be controlled, safely used by the users and is free from the threat or disruption to sea-based activities. This research explains about how to improve the quality of the Indonesian Navy personnel human resources serving in Maritime Security Operations Sector through analysis of CBA (Cost and Benefit Analysis) and SUG (Seriousness, Urgently and Growth) Model. The result of this research is improving knowledge and insights of Indonesian Navy personnel on legal matters, particularly maritime security law is very important to endorse the implementation of the vision and mission of the navy.

**Keywords:** Indonesian Navy Personnel, Maritime security, CBA, SUG Analysis

## I. INTRODUCTION

Unitary State of the Republic of Indonesia is the largest archipelagic state in the world with more than 17.000 islands with 5.8 million km<sup>2</sup> sea area [1]. The exclusive economic zones (EEZs) that became accepted in the 1970s were a major institutional development, and fundamentally changed the jurisdictional framework for fisheries worldwide [2]. Indonesia is a maritime nation with 75 % or 5.8 million square kilometers of its area is covered by the sea, including the Indonesian Exclusive Economic Zone / IEEZ and three Indonesian archipelagic sea lanes; Malacca Strait, Sunda Strait, and Lombok Strait affirm Indonesia as the most strategic geographical position. Maritime Security, is a term that draws attention to new challenges and rallies support for tackling these. Discussions of maritime security frequently do so by pointing to threats that prevail in the maritime domain [3]. The Indonesian people feel so pathetic to witness the current condition in Indonesian waters since there are many crimes, especially law violations that occurred in the Indonesian maritime territory that could lead to a prolonged polemic and hampers the efforts to build national unity. Ideally, maritime security should be safely guaranteed, meaning that the sea can be controlled, safely used by the users and is free from the threat or disruption to sea-based activities.

**Revised Manuscript Received on September 20, 2019.**

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Addressing the current state, human resources management is one of the most important units of modern firms and organizations [4]. It must be regarded as the totality of physical and intellectual properties a person uses in production and services needed for survival [5]. The need for real action on how to improve the quality of Indonesian Navy Personnel as the law enforcement agent in the sea to embody the implementation of the vision and mission of the Indonesian Navy, especially the second mission, which reads "guarantee the sovereignty and law, security of the seas, and the territorial integrity of the Republic of Indonesia as well as Naval diplomacy implementation and the empowerment of sea defense area " based on the United Nations Convention on the Law of the Sea (UNCLOS 1982) [6] and Standard Operating Procedures of Law Enforcement and the safeguard of National jurisdiction at sea.

This research explains about how to improve the quality of the Indonesian Navy personnel human resources serving in Maritime Security Operations Sector through analysis of CBA (Cost and Benefit Analysis) and SUG (Seriousness, Urgently and Growth). The purpose of this research is to get a method to improve the quality of human resources in terms of knowledge of the law at sea for Indonesian Navy personnel who served in the Maritime Security Operations Sector. The method of collecting data is obtained from the primary data through the author's work experience and interviews with three officer Indonesian who daily serve in the field of law.

This paper is organized as follows: Section 1 introduction, Section 2 reviews the basis of theory maritime security, CBA analysis, and SUG analysis, Section 3 gives describes the analysis of research problems, result, and discussion. Finally, section 4 presents this paper conclusion and future work.

## II. MATERIAL AND METHODS

### II.1. Maritime Security

The Indonesian Navy is authorized in relation to environmental criminal investigations in the Indonesian waters, ZEEI and Continental Shelf, as well as they, are in charge of maritime security. It is defined as follows:

- Free from organized and armed threats of violence. The threats can be piracy, sabotage and maritime terrorist acts [3].
- Free from the threats of navigation, posed by geography and hydrographic conditions and inadequate navigation aids that endanger the safety of shipping [7].
- Free from threats to marine resources such as pollution and destruction of marine ecosystems and the excessive exploitation and exploration [8] [9].



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d. Free from threats of law violation, either national or international law such as illegal fishing, illegal logging, illegal migrants, smuggling and etc [3].

## II.2. CBA (Cost-Benefit Analysis)

Cost-benefit analysis (CBA) involves the practical application of modern welfare economics to public policy [10]. It is an approach to policy recommendations that enables the analysis of comparing and advocating a policy by calculating total costs in the form of money and total profits in the form of money [11] [12].

The basic idea of CBA is straightforward [13]. It is often used by decision-makers (mostly governmental bodies) to analyze the feasibility of a public project [14] [15] [16]. The implementation of government projects generally has a different purpose than private investment. On a private project, it is usually measured based on the profit gained. On government projects, profits often cannot be measured clearly because they are not profit-oriented. In other words, profits are based on common benefits gained by society. In government projects:

- a. All expenses are all expenses incurred by the Government.
- b. All benefits are cost savings incurred by the community through the project.

The basic stages in performing cost-benefit analysis generally include [17]:

- a. Determine the purpose of analysis appropriately
- b. Determination of the perspectives used (identification of the stakeholders involved)
- c. Identify costs and benefits
- d. Calculate, estimate, scale and quantify costs and benefits
- e. Taking into account the time period (discount factor)
- f. Describe the limitations and assumptions

## II.3. SUG Analysis (Seriousness, Urgency, Growth)

A simple way to assign priorities is to use the categories of Seriousness, Urgency, Growth (SUG) [18]. SUG Analysis is one tool to arrange priority order issues to be solved [19]. How to determine the level of urgency, seriousness, and the development of issues by determining the scale of values 1-5 or 1-10. Issues that have the highest total score is a priority issue. For more details, seriousness, urgency, and growth can be described as follows [20]:

### a. Seriousness

How seriously the issue needs to be addressed is related to the consequences that arise with the problem-solving delay that raises the issue or the consequences that cause other problems if the issue-of-issue issue is not solved. It should

be understood that under the same circumstances, a problem that can cause other problems is more serious than a stand-alone problem.

### b. Urgency

How urgent the issue should be discussed is linked to the time available and how hard the time pressure is to solve the problem that caused the issue.

### c. Growth

How likely the issue to be developed is linked to the possibility of problem-causing issues getting worse if left unchecked.

SUG method is one way of establishing the priority order of the problem by the method of scoring technique. The process for the SUG method is carried out by taking into account the urgency of the problem, the seriousness of the problem at hand, and the likelihood of growing the problem even more. It can be explained as follows:

- a. The seriousness of the problem is by looking at the impact of the problem on work productivity, influence on success, harm system or not.
- b. Urgency is seen from the availability of time, urgent or not the problem is solved.
- c. The growth of the problem is whether the problem develops in such a way that it is difficult to be prevented.

## III. RESULT AND DISCUSSION

From the result of interviews with three officer Indonesian who daily serve in the field of law can be concluded the role of the Indonesian Navy as specific criminal acts investigator at sea is very important, so the efforts to continuously improve quality of Indonesian Navy human resources in maintaining maritime security is a positive potential to conduct its main tasks and functions of the organization. On the other side, this effort is also considered as an opportunity to initially improve working systems in the Indonesian Navy.

The process of identifying the problem can be seen from the gap between current conditions and expected conditions. So, it can be used as the basis of the problem-solving analysis to find out the actual issues in the current condition that occur in the territorial waters of Indonesia, such as:

- 1. Lack of adequate facilities and infrastructure.
- 2. Lack of human resources dealing with legal affairs.
- 3. Lack of coordination with other agencies
- 4. Lack of personnel

The determining of the dominant subject matter is used SUG analysis, as Table 1 and Table 2 :

**Table 1. SUG Analysis**

ANALYSIS	S = SERIOUSNESS	U = URGENCY	G = GROWTH
SCORE	5 = Very Serious	5 = Very Urgent	5 = Very Growth
	4 = Serious	4 = Urgent	4 = Growth
	3 = Serious Enough	3 = Urgent Enough	3 = Growth Enough

	2 = Less Serious	2 = Less Urgent	2 = Less Growth
	1 = Not Serious	1 = Not Urgent	1 = Not Growth

Table 2. Matrix SUG Analysis of Dominant Problems

NO.	ISSUES	SUG ANALYSIS				RANK
		S	U	G	SCORE	
1.	The Lack of adequate facilities and infrastructure.	4	5	4	13	II
2.	<b>The Lack of human resources quality dealing with legal affairs.</b>	5	5	5	15	I
3.	The Lack of coordination with other agencies	5	4	3	12	III
4.	The Lack of personnel	4	4	3	11	IV

From Table 2 issues, number 2 is chosen as the most dominant problem is carried out using the SUG analysis dominant issue. Furthermore, to determine the specific technique, as shown in Table 3:

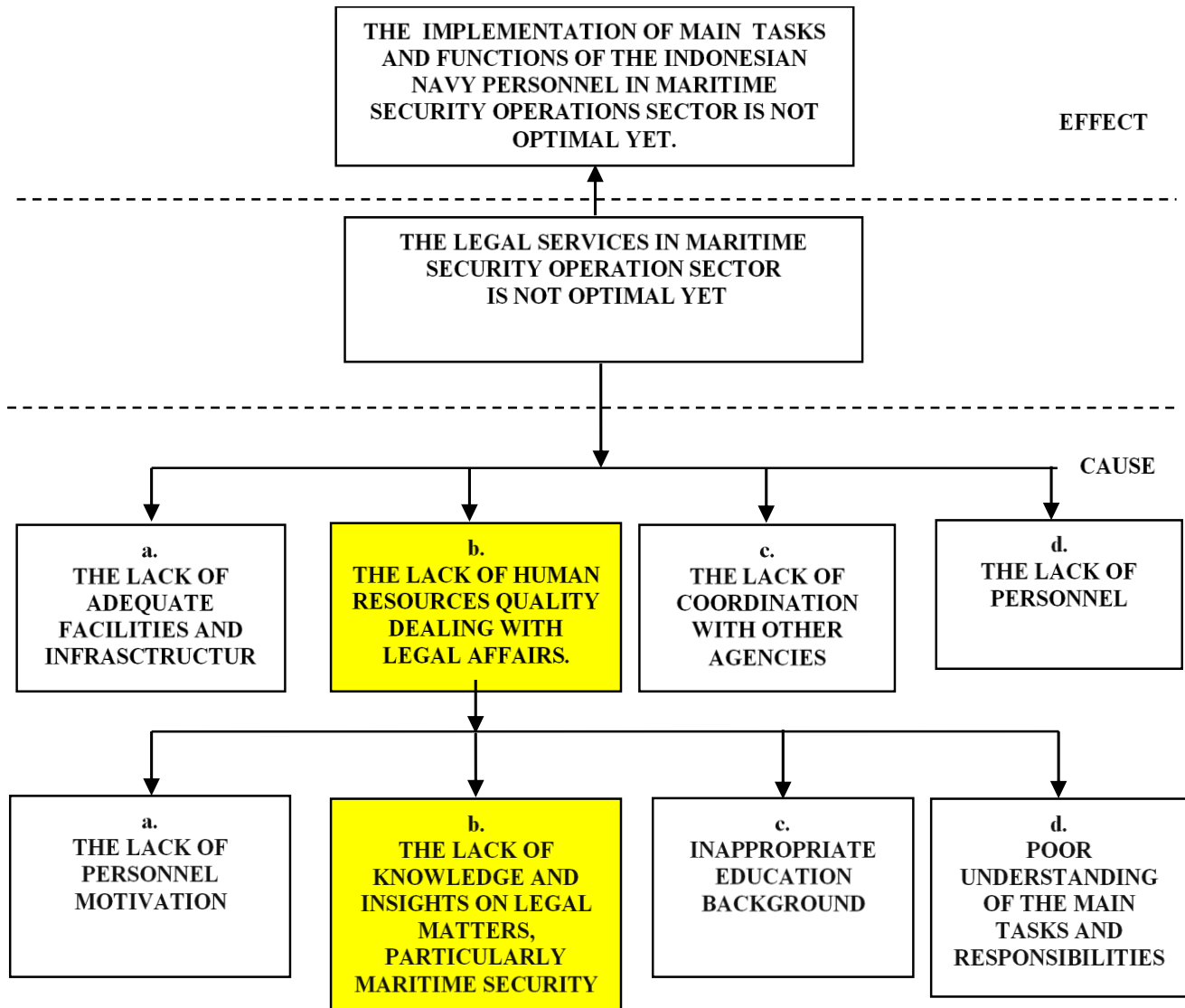
Table 3. Matrix SUG Analysis of Specific Problems

NO.	ISSUES	SUG ANALYSIS				RANK
		S	U	G	SCORE	
1.	The Lack of personal motivation	4	5	4	13	II
2.	<b>The Lack of knowledge and insight on legal matters, particularly maritime security</b>	5	5	5	15	I
3.	Inappropriate education background	3	4	4	11	III
4.	Poor understanding of the main tasks and responsibilities.	4	3	3	10	IV

After analyzing the four specific issues, the most dominant is number 2.

The explanation of the identification of the issues mentioned above is shown by the below tree chart, in Figure 1. Chart of Issue Tree:

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**Figure 1. Chart of Issue Tree (Negative Statement)**

**Remarks:**

- The encountered issue is number 1.
- The effect of issue number 1 is number 4.
- The cause of issue number 1 is the issue number. 2b.
- The cause of issue number 2 is number 3b.

In this test, to determine the desired target is by changing negative statements on the issue tree into positive statements on the target tree. To easily comprehend the target analysis, it is visualized into the following target tree:

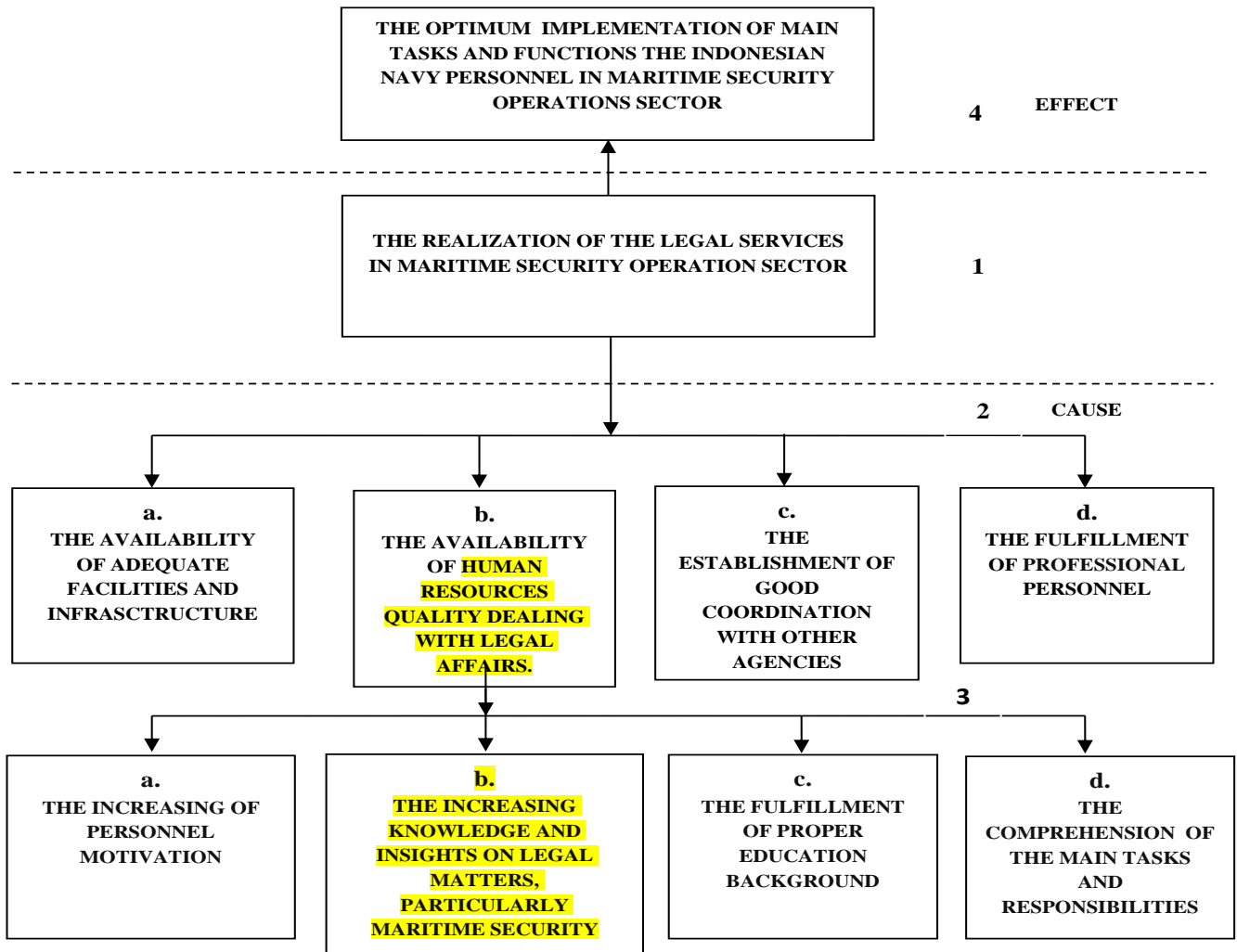


Figure 2. Target Tree

After identifying and analyzing the problems that arise, the intended specific target is **the increasing knowledge and insights on legal matters, particularly maritime security.**

Furthermore, smart program alternatives are also needed for Indonesian Navy personnel to improve the comprehension of matters of maritime security, such as:

a. Conducting an **objective discussion** between officers and military members on the administration of maritime security law, it is expected that the discussion could unite opinions and insights and exchange ideas and knowledge of the personnel.

b. Conducting a 30 hours **Smart Course** within 10 working days with the topic of Maritime safety law in order to increase knowledge and insight on Maritime security law.

c. Conducting **socialization of Technical Manual Book** on Maritime security law.

Of the three alternatives, we pick out the best Smart Program Alternative to increase the performance of personnel who deal with the administration of maritime security law through CBA analysis (Cost-Benefit Analysis), as shown in Table 4:

Table 4. Smart Program Alternatives CBA Analysis (Cost-Benefit Analysis)

No.	Smart Program Alternatives	B	C	Ratio B/C	Rank
1.	Conducting an <b>objective discussion</b> on the administration of maritime security law.	3	5	0,6	III

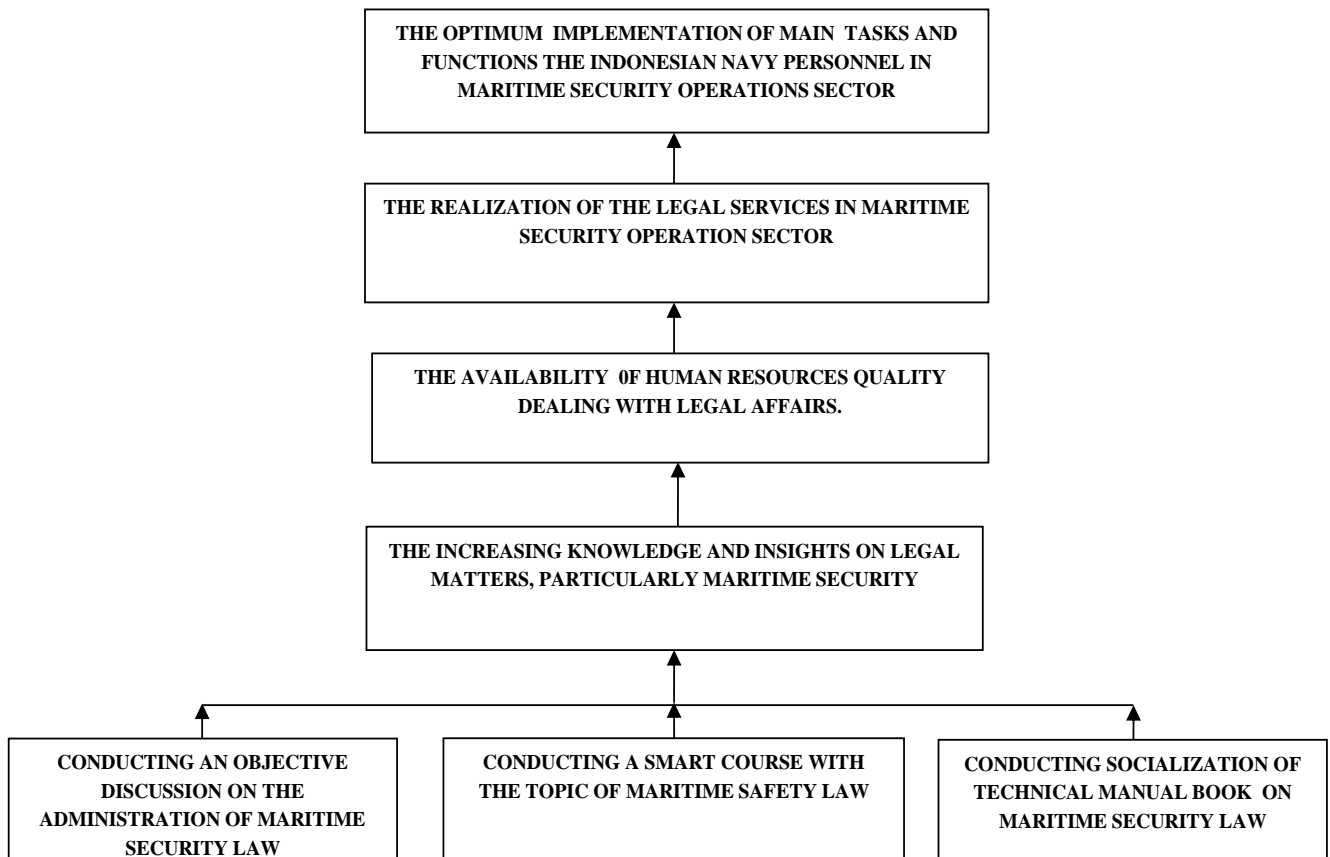




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2.	Conducting a <b>Smart Course</b> with the topic of Maritime safety law.	4	4	1	I
3.	Conducting <b>socialization of Technical Manual Book</b> on Maritime security law.	4	5	0,8	II

From the Table 4, it can be seen that the alternative number 2, that is: **Organizing a Smart Course with the topic of Maritime safety law** gets the highest score, meaning that it is the best alternative that could be implemented to resolve the issue. More detail can be seen in the following alternative tree in Figure 3:



**Figure 3. Alternative Tree**

From Table 4, a common goal is obtained that is the availability of human resources quality dealing with legal affairs through the implementation of a smart course with the topic of maritime safety law. Realization of human resource quality legal personnel optimum maritime security through the implementation of the Smart Short Course with material All about Safety Law of the Sea.

### IV. CONCLUSIONS

To improve knowledge and insights of Indonesian Navy personnel on legal matters, particularly maritime security law is very important to endorse the implementation of the vision and mission of the navy. We conclude that the program that we prioritize is to conduct a smart course with the topic of maritime safety law.

To implement a **smart course program with the topic of maritime safety law**, we apply a method called Integrated Work Pattern (IWK). In this case, we can

determine “**who doing what**” or known as 3W1H (Who, When, Where, How) to assure that the source, materials, methods, organization, and procedure, as well as the of work responsibility, are ready to achieve the goals.

### FUTURE WORK

Based on the experiences gained during this case study, the following researches are proposed: the sustainability of quality naval human resources as a system needs to be included in future research. The sustainability of quality naval human resources is assessed on the dynamics of the system that happens in any given period of time based on current developments of a political, cultural and economic situation.

This future research can proceed with the system dynamic methods to assess the sustainability of quality naval human resources.

### ACKNOWLEDGMENT

The authors greatly acknowledge the support from Indonesian Naval Technology College STTAL Surabaya Indonesia and for providing the necessary resources to carry out this research work. The authors are also grateful to the anonymous reviewers and journal editorial board for their many insightful comments, which have significantly improved this article.

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