



OPTIMIZING THE ABILITY TO ADAPT AND COMPETE OF BATTALION A PERSONEL IN THE INDUSTRY 4.0 TO PERFORM COASTAL DEFENSE OPERATIONS

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ABSTRACT

This study aims to evaluate and determine the ability of Battalion A personnel to adapt and compete in the industry 4.0 in coastal defense operations. This study will describe the optimization of Battalion A's ability to perform coastal defense operations in area x. The method used is qualitatively descriptive. Data collected through interviews with informants who have data on the research object and the direct observation of researchers on related objects. The findings of the research show that, at the latest, the capacity of Battalion A facilities and infrastructure is insufficient, making it less efficient to carry out coastal defense in area x. It can be concluded that the present situation of Battalion A has not been prepared to adapt to the industry 4.0 in terms of personnel, infrastructure and defense facilities in Air Defense Artillery.

KEYWORDS: *optimization, ability, industry 4.0, coastal defense*

INTRODUCTION

Globalization has given rise to arms technology that has altered the paradigm of military warriors in contemporary maritime warfare. Arms technology is being used along with the growth of the worldwide strategic setting of the industry 4.0 in terms of energy security, terrorism, global warming, food crises, the global financial crisis, and weapons of mass destruction, regional conflicts, and others affecting the military, economy, transport and industry sectors.

The growth of science, which, on the one hand, has a beneficial effect on human civilization, also has a negative side, which includes the use of scientific breakthroughs to create new types of war technology

that have a much more alarming effect on the survival of a nation. Sociologically, military technology promotes the creation of new values and norms in the soldiers ' living conditions and the scope of their assignments.

Principles of Integrated Maritime Surveillance Systems will be of essential concern to anyone responsible for designing, implementing or supplying a well-designed maritime surveillance and control system capable of monitoring vessels and offering navigational and other kinds of data needed for secure navigation and effective business operation. Principles of Integrated Maritime Surveillance Systems are therefore crucial for a multitude of user organizations, ranging from port authorities to shipping businesses

and maritime exchanges, as well as civil and military governments [1](Ince, Topuz, Panayirci, & Işik, 1998)

The paradigm of war that has emerged in different parts of the world today and in the future is the emergence of new values with the phenomenon of war without the mobilization of troops, without open warfare, but enough to mobilize the capabilities and sophistication of technology, information, and communication to conquer the opposing party. Industry 4.0 Pillar Technology is very helpful in the planning of military assignments, military activities and the effectiveness of the country's military budget [2] (Sasongko, 2018).

According to the Indonesian Rectors ' Forum (FRI), one of the issues with Indonesia's position as an archipelago is the weak defense and resilience of the country in terms of its maritime dimension. One of them is limited maritime security facilities and infrastructure [3](FRI, 2016)

According to David W. Barno and Nora Benhasel in the presentation of TNI Rear Admiral Dr. Amarulla Octavian, S.T., M.Sc., D.E.S.D [4] (Octavian, 2019) using the following methods:

- a. Space and cyber
- b. Artificial Intelligence, big data, machine learning, autonomy, and robotics
- c. The return of mass and defensive advantage
- d. A new generation of high tech weapons
- e. The Unknown x-factor

Industry 4.0 is still a visionary but realistic idea, including the Internet of Things, the Industrial Internet, Smart Manufacturing and Cloud-based Manufacturing. Industry 4.0 is concerned with the rigorous inclusion of humans into the manufacturing system to ensure continuous improvement and concentrate on value-added activities and the prevention of waste. [5] (Vaidya, Ambad, & Bhosle, 2018)

Hofmann & Rüsç [6] (2017), in their findings show the Industry 4.0 opportunities in terms of decentralization, self-regulation and effectiveness. Moreover, it is evident that the notion of Industry 4.0 still lacks a clear understanding and is not yet fully implemented in practice. The studies show the prospective consequences of Industry 4.0 in the context of Just-in-Time / Just-in-Sequence in an accurate way.

Mott, Trim, & Fissel [7] (2007) examines problems associated with strategy, operational art, tactics, logistics and military technology, but also considers commerce and culture. They show that the amphibious war was often waged for financial purposes and was the quintessential war waged by European imperialism because sea power was needed to produce and maintain land power.

Henry Ecles describes the correlation between strategy, logistics, and tactics in a book entitled "Logistics in the National Defense." Strategy and tactics are the methods used by leaders (usually military leaders) to achieve the goals of military action to win the war [8] (Ecles. 1979).

This theory says that logistics is a typical method that consists of planning, organizing, mobilizing and controlling facilities and infrastructure to promote and achieve the goals that have been achieved through the use of human resources and other resources [9] (Samsudin, 2006).

By observing the present situation, Battalion A tends not to be used optimally in terms of the logistics recommendations they have. This provides fundamental thinking for researchers to put forward ideas that are ideal and that can be designed in such a way that the unit has the strength and ability to adapt and compete in the industry 4.0.

RESEARCH METHODS

In this study, researchers used a qualitative descriptive method, which utilizes descriptive data in the form of oral or written statements from research subjects. The unit of analysis in this research is the Battalion A which has the main task of maintaining and securing the main base facilities and infrastructure as well as the existing facilities in the Main Navy Base line of legal responsibility and authority covering aspects of land, sea, and air. The Coastal Defense Operation is carried out under the command of the Coastal Defense Operation, which consists of the Navy component as a core force, involving the Indonesian Army and Air Force components.

In this research, the primary data collected by the researcher are the direct observation of the object under research, particularly Battalion A, which is responsible for Coastal Defense Operations and has correlations in related sectors. Researchers performed interviews with informants who have expertise or data on the research subject.

RESULTS AND DISCUSSIONS

Based on the results of the interviews and observations, the researchers evaluated that the present capability of Battalion A facilities and infrastructure was insufficient, making it less efficient to perform coastal defense functions in area x. This is aligned with the statements made by some respondents: "At existing Battalion A facilities are still insufficient. However, the responsibilities and roles of the personnel have performed well. They have to stay ready to perform any mission, right?" (P1-C4)

The same statement by another respondent: "The facility does not yet support it. Also, the location of the base is not too wide based on reports, so it is also impossible to meet the infrastructure requirements. There is already a discussion about moving the base location to another area, but it is definitely not easy and it needs time." (P3-C1)

"Enhanced infrastructure, personnel and logistics are required to optimize defense functions. We need a wider area as well." (P3-C6)

Affirmation by other respondents: "Mobility is not yet optimal in my opinion. To my knowledge, there is still an insufficient life vest. Also, landing boat lifeboats need to be provided in emergencies." (P4-B2)

Likewise, the respondents who indicated that Battalion A is still insufficient in terms of arms and mobility: "I think it is very insufficient. The coastal defense needs large-scale weapons that are responsive to front attacks, such as combat vehicles and landing gear, etc." (P5-B2)

Another respondent also indicated that the transport facilities in Battalion A were insufficient and required to expand the base so that the training grounds meet the standards: "It is still insufficient to meet the requirements of Battalion A, particularly vehicles." (P6-C7)

"Battalion A facilities, such as workplaces and training grounds that do not fulfill standards, are still insufficient at present. The responsibilities and roles of personnel, however, are still going well at the moment." (P6-C4)

The same view was also given by staff at the lower levels. As an operational staff, he shared his experience of having to work in a tsunami disaster situation while the facilities and infrastructure were very limited at the time: "Insufficient. The amount of material available is still minimal and needs to be revitalized, which makes work not optimal, for example when the tsunami, because there was no battalion there at the time, so we were moved to the location of the tsunami. We were dropped with insufficient equipment, but the results are quite good, even if the completion time is longer and more energy is being wasted, because of the infrastructure conditions" (P8-C15)

Similarly, logistics personnel who are fairly capable of explaining the lack of logistical equipment in Battalion A: 'Not yet. Not presently supported. The location and

area of the base are also not too large, so it is also difficult to meet the standard of the infrastructure. For instance, we need a wider court of practice, but the condition is not feasible. Moreover, sports facilities are also hard to meet the conditions of the infrastructure." (P9-C4)

"Facilities that have not been maximized include landing, maintenance and repair services, equipment, maintenance of personnel, facilities and support infrastructure at the base that connects the headquarters to land, sea and air facilities, communication and training facilities." (P9-C10)

Another respondent also made the same statement on the basis of the report he got concerning the lack of Battalion A equipment related to the small area of the Base, the small and non-standard workspace, and the lack of vehicles to carry out defense assignments: "When looking at the facilities, Battalion A is still insufficient, such as its small location, so that some workspaces still lack standard." (P13-C4)

"Still not enough to meet the standard of Battalion A, particularly vehicles. The number of vehicles is still insufficient to provide logistical assistance. The need for additional vehicles will further improve its performance (P13-C7)

In addition to being based on the results of the interviews, the researchers also gathered information from the Logistics Staff on the number and quality of Battalion equipment and infrastructure. It is observed that the material and logistical conditions of Battalion A are still insufficient for optimizing the assignment of coastal defense in area x.

Referring to Henry E. Eccles's theory of the relationship between strategy, logistics, and tactics, this states that strategy and tactics are the means used by leaders (usually military leaders) to achieve the objectives of military action to win the war. Concerning strategy and tactics, one thing that is dominant and that significantly promotes the accomplishment of victory is sufficient logistical support for the personnel and combat equipment used. These three components are inseparable because they influence each other. Intelligence information is used as a consideration of the leaders and determinants of the right strategy and tactics to be applied and how much logistics is needed and how to prepare and support it.

In addition to the results of the analysis presented in the description of the personnel ability, the strength parameters of Air Defense Artillery and the availability of facilities and infrastructure in Battalion A, the researchers also observed that these three things were not optimal for adaptation to the industry 4.0. Dr. Amarulla Octavin, S.T.M., Sc., D.E.S.D., indicated in a public lecture that the intense and rapid technological changes of the industry 4.0 needed the military to adapt more rapidly and to create

major changes. In the face of strategic environmental dynamics and geopolitical change, military capabilities based on digital technology, big data, and artificial intelligence must be created to address the opportunities and challenges of the Industry 4.0.

Military organizations in the Industry 4.0, it requires an agility leadership model that is full of innovation when change occurs and does not remain silent to allow its organization to be rolled up in the flow of change. Referring to this perspective, Battalion A still needs improvement to adapt to the demands of globalization in the industry 4.0. This is based on observations and statements made by the respondents.

Statement on the quantity and quality of Battalion A's infrastructure facilities by the respondents concerning the inability of Battalion A to compete in the industry 4.0: 'Not yet, given the insufficient condition of facilities and infrastructure, it can not, of course, be said to be able to adapt to the of the industry 4.0. Renewal of equipment supporting industry 4.0, in particular for Air Defense Artillery, such as defense equipment supporting coastal defense operations". (P3-E5)

Other respondents also argued that the condition of weapons, particularly in Air Defense Artillery Battalion A, has not been able to adapt to the industry 4.0: "We are still not fully capable of adapting to the industry 4.0. In this modernization, the condition of our weapons and artillery, particularly in Air Defense Artillery, needs modernization to be able to adapt to the industry 4.0." (P4-E6).

Statement by the respondents on the inability to adapt in the industry 4.0, particularly due to the lack of facilities in Air Defense Artillery: "I believe that the current conditions for Battalion A facilities, particularly in Air Defense Artillery, are insufficient, and we need modernization in order to be able to adapt to the industry 4.0." (P5-E6)

Statements by the respondents on the lack of quantity and quality of personnel, facilities, and infrastructure that are not yet fully modern and the lack of defense equipment in Air Defense Artillery are important considerations in the ability to adapt in the industry 4.0. "Battalion A is still not fully capable of adaptation if the conditions of Battalion A are not yet optimal. As I said previously, the quantity and quality of personnel are not yet completely resolved. Existing facilities and infrastructure are also far from contemporary design. It also lacks the defense facilities of Air Defense Artillery, so the air defense is not yet optimal." (P6-E6)

Respondent who argued that if Battalion A still relied on current strengths, it would be hard to compete in the 4.0 industry. "In my view, if we depend solely on actual strengths, it will be hard to protect the coast, particularly to compete in the industry 4.0. If we want to achieve a successful coastal defense, we must improve both the number of existing personnel and defense equipment." (P11-E7)

Respondent stated that the conditions of Battalion A's defense must be improved to be able to compete in the industry 4.0: "Currently, the conditions of coastal defense are insufficient to compete in the industry 4.0, because there is still much to be fulfilled, mainly to personnel and defense equipment. (P12-E5)

Respondents' perceptions on equipment and infrastructure in Battalion A still need a lot of improvement if they want to compete in the industry 4.0: "Personnel ability is good enough, it's just that the material and infrastructure still needs to be improved again, by suggesting improvements to the top units." (P13-E6)

CONCLUSION

The main objective of the use of information technology is to improve political capacities, intelligence, military weapons systems, cyber skills, and command and control systems. Warfare-based 'robotic' and 'nano-technology' technologies continue to develop in the aspects of information technology and computers that give birth to weapons and unmanned aircraft and cyber technology that attack the national defense data infrastructure and information systems.

Military institutions therefore really need to pay attention to, and prepare for, the quality and quantity of the abilities and capabilities of personnel in the face of the threat of a future modern war in the Industry 4.0. However, the situation of Battalion A is not yet fully adapted to the industry 4.0, both in terms of personnel, infrastructure and defense equipment in Air Defense Artillery..

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