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Revolution in military affairs (RMA) by Indonesian armed forces towards competitive advantage

Arief Rachman[a], Amarulla Octavian[a], Ahmad Irdham[a], Yusuf Ali[a], I. N. Putra[a] and A.K. Susilo[b*]

[a]*Indonesia Defense University, IPSC Sentul, Citeureup-Bogor, Indonesia 16810*
[b]*Airlangga University, Airlangga No.4 - 6, Gubeng-Surabaya, Indonesia 60115*

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A B S T R A C T

The dynamics of the conflict in the South China Sea (SCS) have begun to enter a new chapter. Currently, the South China Sea (SCS) is a flashpoint in the Asia Pacific region. This study aims to provide an analysis of the concept of the Revolution in Military Affairs (RMA) strategy by the Indonesian Armed Forces (*TNI*) toward Competitive Advantage in the South China Sea region. This study employed an analytical approach with a qualitative sequence exploratory method supported by some quantitative data. PEST (Political, Economy, Socio-cultural, Technology) analysis and SWOT analysis methods were used to support the study. Furthermore, this study also utilized an Analytical Hierarchy Process (AHP) method approach to provide strategic value and sensitivity analysis as a strategy scenario analysis toward competitive advantage. Based on the results of the research analysis, a strategy under the development of Indonesian Armed Forces capabilities towards a competitive advantage in the South China Sea was obtained, namely the WO strategy which consists of 6 substrate aspects with eight subfactors, namely the combination of all components and strengths in handling security disturbances in the South China Sea (0.162), increased competence of human resources (0.159); development of integrated defense forces and capabilities (0.147), protection of information systems and state secrets (0.145), development of defense facilities and infrastructure (0.109), increasing the capacity and capability of modernizing intelligence technology (0.093), utilization and capacity building of the national defense industry (0.089), deployment of Indonesian Armed Forces troops in the South China Sea (0.075). This study is expected to contribute to the strategy for handling conflicts in the South China Sea and provide strategic steps in increasing capabilities on competitive advantage.

1. Introduction

The dynamics of the conflict in the South China Sea (SCS) have begun to enter a new chapter (Huang & Suliman, 2020). Currently, the South China Sea (SCS) is a flashpoint in the Asia Pacific region (Skinner et al., 2022). Disputes in the South China Sea (SCS) do not only involve six countries, such as China, Taiwan, Vietnam, the Philippines, Brunei, and Malaysia but also involved the interests of other major powers such as the United States (Adnan & Shahid, 2020; Anton et al., 2021; Dipua et al., 2020). The claims made by various countries bordering the South China Sea (SCS) have raised concerns among surrounding claimant and non-claiming countries as well as countries outside the region over the future control, stability, and security of the territorial waters there. The growing concern has then triggered an escalation of tensions due to military activities and shows of force between the armed forces and provocation efforts in the South China Sea (SCS) area (Rossiana, 2022; Wardhana, 2021).

* Corresponding author.
E-mail address: april.kukuh.susilo-2020@feb.unair.ac.id (A.K. Susilo)

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Although Indonesia is not included in the vortex of conflict in these waters, the existence of a struggle for interests between the two big countries is not impossible to have an impact on Indonesia (Rossiana, 2022). The Indonesian military continues to build up its strength in Natuna. The policy is an effort to anticipate the occurrence of war in the region following the heating up of the situation in the waters of the South China Sea (SCS). As the main component of national defense, the Indonesian Armed Forces (*Tentara Nasional Indonesia,* abbreviated as *TNI*) slowly but surely continues to strengthen its existence as a deterrence effect in the region (Agastia, 2017).

Due to the demand for observing current trends, however, the *TNI* needs to consider the evolving concept of Revolution in Military Affairs (RMA), namely the deployment of more effective and responsive military operational units through increased joint operations supported by networks (network-centric), emphasizing the ability to cooperate and communicate more effectively in battle. The *TNI* revolution covers various aspects, where the achievements of the RMA are carried out through conditions where all bodies and structures have reached the ideal posture as an armed force and are carried out both as a deterrence effect and an effective hitting capability in the context of facing national security threats (Ahmad et al., 2021). These conditions are needed to achieve a competitive advantage in the South China Sea region. Competitive advantage itself is defined as things about our business that make certain customers buy from us, rather than competitors. The popularity of big data business analytics is increasing exponentially, and challenges remain about how to leverage it and create value in business (English & Hoffmann, 2018). Therefore, an analytical study of the development of the Revolution in Military Affairs (RMA) strategy concept is needed for the Indonesian Armed Forces. This study aims to provide an analysis of the concept of the Revolution in Military Affairs (RMA) strategy by the Indonesian Armed Forces toward Competitive Advantage in the South China Sea region. This study employed an analytical approach with a qualitative sequence exploratory method supported by some quantitative data. PEST (Political, Economy, Socio-cultural, Technology) analysis and SWOT analysis methods were used to support the study. Furthermore, this study also utilized an Analytical Hierarchy Process (AHP) method approach to provide strategic value and sensitivity analysis as a strategy scenario analysis toward competitive advantage. This study was expected to contribute to the strategy for handling conflicts in the South China Sea and provide strategic steps in increasing capabilities on competitive advantage.

There are several previous studies to support this study. Research of Revolution in Military Affairs (RMA) and Competitive Advantage including Majerowicz & De Maderios (2018) reviewed China's interpretation of Revolution in Military Affairs and China's perception of its backwardness and possible catch-up and evolution in this most sophisticated segment of the productive chain through domestic enterprises and indigenous innovation. Chatziilias (2021) sought to highlight the main weaknesses of American RMA and their implications for the efforts of its main competitors, Russia and China. Raska (2021) argued that the new wave of 'artificial intelligence-driven RMA' differs in the paths and patterns of political, strategic, technological, and operational diffusion. Samaras et al. (2019) explained that defense can lead the way for economic reasons as well as a result of military concerns, advanced technology and operational strategies that enhance military capabilities and competitive advantage.

The following are previous studies on SWOT-*Competitive Advantage*. Susilo et al (2019) explained the strategy for developing the *TNI AL* posture to support operational tasks. A study conducted by Wardana & Darma (2020) aimed to determine the competitive advantage strategy used by the garment industry in dealing with the current COVID-19 pandemic situation. Fatonah & Tunggal Sari (2018) provided evidence of how an effective SWOT analysis of social media strategies can increase a business's competitive advantage. Weng & Liu (2018) used the SWOT model to analyze the strengths and weaknesses of the research objectives as well as external opportunities and threats to Competitive Advantage. Hosseini et al. (2018) conducted a study to identify and assess competitive advantage factors in new product development.
This article consists of several sections. Section 2 discusses the theory of RMA, Competitive Advantage, and the relationship between RMA theory and Competitive Advantage. Section 3 describes the study area, namely the South China Sea. Section 4 explains data collection, processing, and analysis, the methods used, namely SWOT Analysis, Analytical Hierarchy Process, and Sensitivity Analysis. Section 5 explains the results of the analysis and discussion. Section 6 describes the conclusion of this study.

2. Literature review

2.1 Revolution in Military Affair (RMA)

Revolution in Military Affairs (RMA) is largely based on the application of information technology to military operations (Masys, 2004). The concept of Revolution in Military Affairs (RMA) which is well known today cannot be separated from the ideas formulated by the Soviet Union in the 1970s. At that time, the Soviet Union introduced the Military Technical revolution (MTR) (Adamsky, 2008). Revolution in Military Affairs (RMA) arises when a country's military takes advantage of opportunities to transform strategy, military doctrine, training, education, organization, equipment, operations, and tactics to achieve decisive military victories, in fundamentally new ways. RMA is a military technology revolution combined with advances in reconnaissance, command, control, computer and intelligence (K3I) technology, and precision munitions (PMs) with a new operational concept. This includes information warfare, rapid and continuous unified operations (faster than the enemy), and bearing the entire mandala of war at all costs (Stone, 2004).

Gray (2010) provides a critique of the definition of RMA that is triggered by technological developments. According to Gray, the definition of RMA as described by Krepinevich has two drawbacks, namely: 1) The requirement that RMA function due to the use of new technology; 2) Krepinevich's claim that the RMA increases combat power and military effectiveness dramatically. Gray states that this definition is just general logic. Gray finally cautions that defining the concept of RMA requires care not to include unnecessary concepts. In line with Gray, Adamsky (2008) states that RMA is driven by more than just a technological breakthrough which also cannot guarantee the success of innovation. Adamsky recognized that many military revolutions had arisen from technological advances. Technology simply sets the parameters of a possibility and creates the potential for an RMA to occur. According to Bedar, RMA includes three levels (Le, 2018):

1. Technology. New IT integration into existing weapon systems and integrated C4ISR (command, control, communications, computers, intelligence, surveillance, reconnaissance);
2. Doctrine and Operation. Experiment with technology to create new types of warfare; and
3. Organization. There can be no RMA without far-reaching institutional change (‘jointness’, the business style revolution in Pentagon management, civilian- military integration).

The characteristic of this RMA is the use of communication and information technology to increase its effectiveness in combat. This effectiveness is obtained by making changes in several military elements, namely weapons, organization, and doctrine, through the application of a system known as the “system of systems”. Thus, RMA can simply be understood as a paradigm shift in the character of the armed forces and how to conduct war in today's era, with the use of new technologies in the military system combined with innovative operational concepts and overall organizational adaptation (Chin, 2019). However, a small country cannot carry out Revolution in Military Affairs (RMA) because of the enormous resources required and limited chances of success. However, a small nation can revolutionize what is limited in scope, and such change does not have a paradigm shift that leads to a permanent change like warfare. A successful Revolution in Military Affairs (RMA) has an "expiration date" when, over time, the products of the revolution - weapons systems that change the nature of war, become available on the market and eventually fall into enemy hands (Yogev et al., 2022).

2.2 Competitive Advantage

Competitiveness is the concept of comparing the ability and performance of companies, sub-sectors, or countries to sell and supply goods and or services provided in the market. The competitiveness of a country can be achieved from the accumulation of the strategic competitiveness of each company (Balanovska et al., 2019). World Economic Forum defines national competitiveness as the ability of the national economy to achieve high and sustainable economic growth (Porter, 1985). Porter (1985) explains the importance of competitiveness for the following three reasons: (1) encouraging productivity and increasing the ability to be independent, (2) increasing economic capacity both in the context of the regional economy and the number of economic actors so that economic growth increases, and (3) believing that market mechanisms create more efficiency. Things about our business that cause specific customers to buy from us rather than our competitors are known as competitive advantages (English & Hoffmann, 2018). According to Porter (1985), “competitive advantage is a combination of factors that determine the success or failure of a company in competition, productivity, use of resources, et cetera”. Competitive advantage is a focused expression of a company’s advantages over competitors in the economic, technical, and organizational domains, which can be quantified using economic indicators (additional profit, higher profitability, market share, sales). Competitive advantage cannot be identified with the company's potential opportunities. In different industries, some firms, regardless of whether industry average profits are low or high, are more profitable than others. This superior performance is a consequence of having special and inimitable factors resulting in higher performance than competitors. These unique skills and capital have a competitive advantage (Hosseini et al., 2018).
The formation of competitive advantage occurs under the influence of two types of factors: strategic and tactical. Strategic factors arise when a company outperforms its competitors by factors in the external or internal environment over a long period. Tactical factors arise when a company outperforms its competitors regarding certain elements of the external and internal environment shortly (Balanovska et al., 2019). Hill et al. (2014) argue that competitive advantage lies in the distinctive features and dimensions of the company, which enable it to offer better services to customers. The schema of the origin, components, types, and outcomes of competitive advantage is presented in Fig. 1.

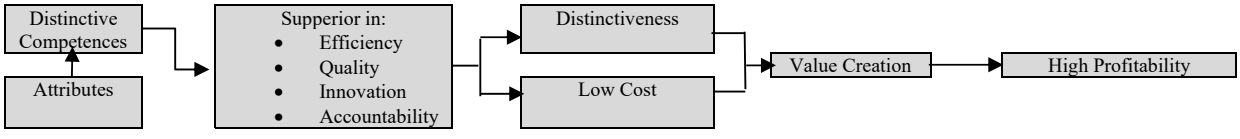

Fig. 1. Roots of Competitive Advantage
Source: Hill et al. (2014)

Internal competitive advantages include production, technology, qualification, organization, managerial, innovation, hereditary, economics, and geography. The analysis shows that the basis of the company's overall competitive advantage is an internal competitive advantage that reflects the company's potential to achieve its competitive position. External competitive advantages, on the one hand, lead companies to develop and use these or other internal advantages. On the

other hand, they provide them with a stable competitive position, because they are oriented towards satisfying the goals of the company's needs. certain consumer groups. The company cannot influence external factors quickly, but internal factors are almost completely controlled by the company's management, that is, management has all the necessary conditions to control the related factors. (Balanovska et al., 2019).

2.3 Competitive Advantage dan Revolution in Military Affair (RMA)

An understanding of the early Revolution in Military Affair was essential to fundamental International Relations (IR) issues, including the rise of sovereign states and modern state systems, as well as the European conquest of much of the rest of the world. It criticized the military revolution thesis that repeated great power wars fueled military innovation and state-building in Western Europe, which then gave these countries the competitive advantage they used to dominate non-European politics (Sharman, 2018). Accordingly, non-state actors, belligerent states, and other adversaries may not appreciate reducing the environmental impact or greenhouse gas emissions of military operations. Yet, defense-led energy innovation from the US and NATO member states will only advance technologies and operational strategies that enhance military capabilities, competitive advantage, and lethal combat in the theater of conflict (Samaras et al., 2019). In recent years, the United States Department of Defense has aimed to streamline its science and technology engine, support ongoing research in fundamental technologies, and rapidly capitalize on emerging technology opportunities in the commercial sector, including cyberspace. It uses all potential sources of technical advantage, from traditional industrial bases, non-traditional suppliers, and academia to help create competitive advantage by translating technical capabilities into solutions and concepts that will turn into capabilities to overcome any threat in Revolution in Military Affair (Raska, 2019). Manufacturing and the military may rely on national technical capabilities to produce and create new goods, infrastructure, and weapons. Public investment in science and technology and other government industrial policies aimed at encouraging private investment in new industries and technologies have been the most persistent and dominant (though not necessarily acknowledged) lever for technical innovation and progress in the Revolution in Military Affairs. As a result, they also become levers for the creation of national competitive advantages among developed countries (Majerowicz & De Medeiros, 2018). This might be a valuable opportunity for organizational strategists to learn from the context of perhaps the most complex and high-risk strategic practice. For example, in both fields, there is a strong dependence on technological innovation as an engine of change and a source of competitive advantage. Proponents of the Revolution in Military Affair argue that “war will be an essentially frictionless technical exercise”. Critical military strategists are wary of such optimism because “[even] for modern Western powers, technology fosters fantasies of fast, easy, and decisive war: however, they still face 'slow, bitter', and uncertain wars” (Kornberger & Engberg-Pedersen, 2021).

3. Study area

3.1 South China Sea

The South China Sea is an area with various rich potentials because it contains oil and natural gas plus its important role as a world oil distribution channel, trade, and international shipping (Paul, 2016). The great potential of the South China Sea region makes this region a conflict, involving many states from East and Southeast Asia (McRae, 2019). The South China Sea (SCS) is part of the Pacific Ocean which covers part of the area from Singapore and the Malacca Strait to the Taiwan Strait with an area of about 3.5 million km². Historically, the South China Sea region has a very large geopolitical role because it is a meeting point between China and other countries bordering the South China Sea which are ASEAN member countries and have several territorial, security, and sovereignty problems. It is surrounded by Taiwan, China, Thailand, Cambodia, Vietnam, Singapore, Malaysia, Indonesia, the Philippines, and Brunei Darussalam (Strating, 2022).

The South China Sea does have the potential to increase the strength of a country. Explicitly the location of a very strategic geographical position, connecting the western countries of the world with the eastern states is in the South China Sea (Chubb, 2021). The South China Sea is the busiest route in the world because more than half of the world's trade and shipping passes through the South China Sea with three major players, namely the United States, China, and India. Meanwhile, the South China Sea is estimated to contain 213 billion barrels of oil (10 times more than the United States' oil reserves) and natural gas which is the same as Qatar's natural gas reserves (the 3rd country with the largest natural gas reserves in the world) (Arifina et al., 2022; Ramkumar et al., 2020; Tkacik, 2018). Besides, the South China Sea area also has fishery resources.

The main reasons why countries involved in the South China Sea conflicts, such as China, Taiwan, Vietnam, the Philippines, Brunei Darussalam, and Malaysia, are interested in fighting over the sea and land areas of the two archipelagos, Paracels and Spratlys in the South China Sea, are three (Arifina et al., 2022). To begin with, the South China Sea and a series of islands have vast natural resources, including oil and gas as well as other marine resources. Second, the South China Sea's territorial waters serve as crossing points for international ship transportation activities, particularly cross-sea trade routes linking European, American, and Asian trade routes. Third, the fairly rapid economic growth in Asia has made countries such as China and countries in the South China Sea, including the United States, eager to gain control and influence over

the South China Sea which is considered very strategic and brings enormous economic benefits for a country (Pramono et al., 2020).

4. Method

Based on the focus and objective of the study, the research approach employed was the sequential exploratory qualitative approach. Hanson et al. (2005) mentioned that the combination of the two methods in a study can provide space for researchers to obtain more comprehensive data. Furthermore, Taguchi (2018) suggested that combining two methods in a study can also provide a more detailed picture of the problem being considered. The use of these two methods has its advantages in collecting and analyzing data to obtain more precise and quality results (Taguchi, 2018). In the first phase, qualitative data were obtained from five people as experts through in-depth interviews. The first phase of data collection intended to seek information related to the issue of RMA, the *TNI,* and the South China Sea dispute. Then, in the second phase, data were obtained using a questionnaire related to stakeholders in the South China Sea. All data obtained were then analyzed descriptively using Microsoft Excel quantitative analysis tool and supported by Expert Choice software. The model design of this study was presented in the form of input, process, and output diagrams that describe the research process from obtaining data, and processing data to analyzing and evaluating the results/output of research data. The data collection in this study was to obtain qualitative and quantitative data consisting of primary and secondary data, obtained by conducting direct interviews with relevant agencies and also by field observations. To obtain data, the following works have been carried out: The dimensions of the operations strategy study were determined by three expert judgments with one doctoral classification and two doctoral students in the strategic and operations management science concentration. The specified topics were synthesized according to the classical review methodology. In the next step, this study also noted when an article discusses the field of strategic management and military operations.

4.1 SWOT Analysis and Competitive Advantage

Strategy can be defined as setting fundamental long-term goals and taking the necessary sequence of actions and allocation of resources to achieve the goals. Strategy is the general direction, the master plan for where the organization is going and how it will develop. When developing management science strategies and seeing a competitive advantage, companies often need to understand the competitive characteristics of external market economics (Weng & Liu, 2018). SWOT analysis helps organizations face evolving challenges to maintain their stability and increase productivity. SWOT analysis is a powerful instrument for conducting a strategic analysis. Its efficacy lies in the ability of organizational strategy determinants to maximize the role of strength factors and take advantage of opportunities. Therefore, it also acts as a tool to minimize weaknesses within the organization, and reduce the impact of threats that arise and must be faced. (Wardana & Darma, 2020). Fatonah and Tunggal Sari (2018) attempted to understand internal and external analysis of the use of web 2.0 technology for entrepreneurial media, the impact of using web 2.0 as an entrepreneur, and the competitive advantage gained by food start-up business in Surakarta using web 2.0. SWOT consists of the abbreviation of the first letter of Strength, Weakness, Opportunity, and Threat (Weng & Liu, 2018). SWOT is a commonly used analytical method for companies to formulate strategies, goals, and development directions. This theory can effectively analyze its strengths and weaknesses and determine its opportunities and challenges. Using a SWOT analysis can help concentrate profitable resources and capabilities and make them more competitive (Weng & Liu, 2018).

SWOT Elements

SWOT analysis is a method of carefully identifying various aspects to build a strategy. The external aspects of opportunities and threats are compared to the internal factors of strengths and weaknesses in a SWOT analysis. The internal strategic factor matrix, or IFAS (Internal Strategic Factor Analysis Summary), is used to organize internal factors. External factors are entered into a matrix called the EFAS (External Strategic Factor Analysis Summary) external strategic factor matrix. After the internal and external strategy factor matrix has been compiled, then the results are entered into a quantitative model, namely the SWOT matrix to formulate competitive strategies in the organization (Susilo et al., 2019).
Identification in the SWOT analysis from internal, namely strength as a positive aspect and weakness as a negative aspect, while SWOT analysis from external is by identifying opportunities and threats (Phadermrod et al., 2019). The next process after being able to identify the strengths, weaknesses, opportunities, and threats is classifying the weights and ratings of each of these factors (Vlados, 2019). Wang et al (2014) it is necessary to look at external and internal factors as an important part of the SWOT analysis: 1) Internal factor. Internal factors affect the formation of strengths and weaknesses (S and W). This factor is related to the conditions that occur in the company or organization, which also influences the formation of decision making; 2) External factor. External factors have an impact on the development of opportunities and threats (O and T). These factors have to do with events that occur outside of the company or organization and have an impact on decision-making. External factor includes industrial, economic, political, legal, technological, demographic, and socio-cultural environments (Živković et al., 2015).

Table 1
IFAS and EFAS Matrix SWOT Strategy

Aspect	Weight	Rating	V x R
Aspect 1	X1	Y1	X1.Y1
Aspect 2	X2	Y2	X2.Y2
Aspect 3	X3	Y3	X3.Y3

PEST Analysis

PEST or PESTEL analysis is a simple and effective tool to identify which external forces may be affecting your business. These strengths need to be identified because they can create both opportunities and threats. Therefore, the purpose of conducting PEST was to 1) find the current external factors that can affect the organization, 2) identify external factors that may change in the future, 3) take advantage of opportunities or avoid threats from external factors (Ho, 2014). PEST analysis is an analysis of the external business environmental factors which include the political, economic, social, and technological fields. PEST is used to assess the market of a business unit or organizational unit. Directional PEST analysis is a framework for assessing a situation and assessing a strategy or position, company direction, marketing plan, or idea. This analysis can be taken as a new opportunity or threat for the company (Lestari et al., 2019). PEST analysis is concerned with the influence of the environment on a business. PEST is a useful way or tool for summarizing the external environment in business operations. PEST must be followed up with consideration of how businesses must deal with the effects of the political, economic, social, and technological environment (Stoyanova & Harizanova, 2017). The PEST Analysis gives an insight into the company's overall image. This analysis can also be used to evaluate new market prospects. The more negative forces that affect the market, the more difficult it is to do business in that market. The difficulties encountered in these markets can reduce the company's profit potential and limit the company's business movements in that market (Alava et al., 2018).

Analytical Hierarchy Process (AHP)

AHP describes complex multifactor or multi-criteria problems into a hierarchy. Saaty (2006) defines hierarchy as a representation of a complex problem in a multi-level structure, where the first level is the goal, followed by the level of factors, criteria, sub-criteria, and so on down until the last level of alternatives with a hierarchy of complex problems can be described in groups which are then arranged into a hierarchy as the problems will appear more structured systematically (Cheng et al., 2002). One of the primary differences between AHP and other decision-making models is that it does not require total consistency. As a result, the current problems can be felt and witnessed, but the numerical data are insufficient to permit quantitative modeling of the situation (Siekelova et al., 2021). There are 7 pillars used and must be considered in AHP modeling (Saaty, 2012), including 1) Ratio scale, a comparison of two values (1/b) where the values of a and b are the same type (unit); 2) Pairwise comparisons; 3) The conditions for the sensitivity of the eigenvectors; 4) Homogeneity and clustering; 5) Synthesis; 6) Maintaining and reversing the order of weighting and ordering in the hierarchy; 7) Group considerations.
Humans instinctively can estimate simple quantities through their senses. The easiest process is to compare two things with a reliable comparison accuracy. Hence, Saaty, set a quantitative scale of 1 to 9 to assess the comparison of the importance of one element to another (Saaty, 1990).
The steps of the AHP method include (Astanti et al., 2020):

a. Creating a pairwise comparison matrix

$$A = a_{im} = \begin{bmatrix} 1 & a_{12} & \dots & a_{1n} \\ \frac{1}{a_{12}} & 1 & \dots & a_{2n} \\ \dots & \dots & \dots & \dots \\ \frac{1}{a_{1n}} & \frac{1}{a_{2n}} & \dots & 1 \end{bmatrix}, i, m = 1, \dots, n \quad (1)$$

b. Creating a criterion value matrix
c. Creating a Sum Matrix for Each Row
d. Assessment of Consistency Index (CI) and Consistency Ratio (CR)

$$\text{CI} = \frac{\lambda maks - n}{n} \quad (2)$$

$$\text{CR} = \frac{CI}{RI} \quad (3)$$

N = Number of Elements,
RI = Random Consistency Index.

If the CR ratio is 0.1 (i.e. 10%), the matrix is said to be consistent and the decision W is accepted. On the other hand, CR beyond that implies too many contradictions in the matrix (Munizu & Riyadi, 2021; Teniwut et al., 2019). Anticipation for the latter situation is to review the matrix, then revise the weights loaded by the vector (Goepel, 2019).

Table 2
Random Consistency Index Value

1	2	3	4	5	6	7	8	9	10
0	0	0.58	0.9	1.12	1.24	1.32	1.41	1.45	1.49

Conceptual Framework

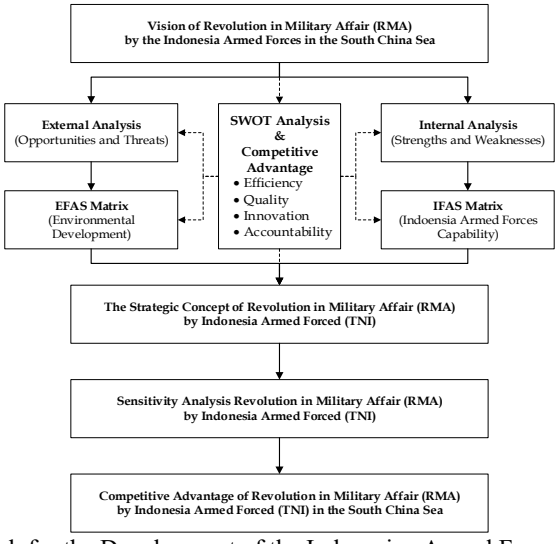

Fig. 2. The Conceptual Framework for the Development of the Indonesian Armed Forces Strategy in the South China Sea

The development of the RMA concept strategy on the Indonesian Armed Forces' capabilities towards Competitive Advantage in the South China Sea consists a vision and mission, identifying the influencing factors, both internal and external factors, and compiling IFAS and EFAS matrices from each variable obtained. The variables obtained were given weights using the Borda method and a Likert scale questionnaire with four expert personnel. Fourth, develop a development strategy from the results of the weighting by identifying the strategic quadrants (SO, ST, WO, WT) using the AHP method. Fifth, provide a sensitivity analysis of the strategic concept that has been prepared based on the dimensions of Competitive advantage with the AHP method approach.

Table 3
Likert Scale Score and AHP Rating Scale.

Likert Score	Description	Saaty Scale	Description
1	Worst	1 2	The same Importance Intervalues
2	Bad	3 4	Weak Dominance Intervalues
3	Moderate	5 6	Strong Dominance Intervalues
4	Good	7 8	Very Strong Dominance Intervalues
5	Excellent	9	Absolute Dominance

Sources: (Astanti et al., 2020; Munizu & Riyadi, 2021)

5. Results and discussion

5.1 External Environment Analysis

The dynamics of the international strategic environment always carry both positive and negative implications on the other side at the same time, which directly or indirectly affects national development. The positive implications bring benefits in supporting the ideals, national goals, and national interests, while the negative implications lead to increasing potential threats to the survival of the country. Besides the influence of external factors from the development of the strategic environment, there are internal factors that have an influence on national stability, especially issues of national security.

The size of the Indonesian archipelago is directly proportional to the magnitude of the challenges that must be faced by an archipelagic country. It should be noted that in the current era of globalization, Indonesia as an archipelagic country has potential problems that pose a threat to an archipelagic country. The threats are in the form of law violations which include armed robbery, people smuggling (illegal immigrants), smuggling of goods, illegal fishing, marine pollution, exploration and exploitation of natural resources illegally, as well as other violations in marine areas. This can be concluded because of the lack of security and physical clarity of sovereignty in the maritime border area. Technological advances and the political consequences of globalization also allow easy access to information and unrestricted mobility which then pave the way for new security challenges with transnational dimensions, and traditional security is the domain of the state. In this study, the analysis of external factors used the PEST (Political, Economic, Socio-Cultural, Technology) analysis approach. Based on the results of expert judgment, several opportunities and constraints were obtained as shown in table 4.

Table 4
External Factor Analysis

ASPECT	OPPORTUNITIES (O)	THREATS (T)
Political	- Indonesia's free and active politics as rebalancing power (O1) - The South China Sea is an opportunity for a military capacity-building campaign (O2) - Indonesia's strategic position as the World Maritime Defense Axis (O3)	- The arms race of Asia Pacific countries (T1) - SCS conflict has the potential as a means or new battlefield (T2) - The massive radical right and radical left threats (T3) - Military threat as a cross position between China and US (T4)
Economic	- Low wages for labor (O4) - Big market share for Indonesia (O5) - Abundant national natural resources (O6)	- The threat of foreign workers from Asia Pacific (T5) - The economic threat of the impact of the US-China trade war (T6) - Foreign ownership of national natural resources (T7)
Socio-Cultural	- The Asia Pacific has 38% (more than a third) of the world's population (O7) - An abundant number of the labor force as a demographic bonus (O8) - Fairly good digital economy growth (O9)	- Constraints of uneven level of education (T8) - Social inequality is still high (T9) - Limited employment opportunities (T10)
Technology	- Transfer of technology from developed countries in the pacific region (O10) - The development of national technology is quite dynamic in the field of defense (O11) - The revival of the national defense industry (O12) - Formation of defense industry super holding (O13)	- The growth of technology research is still minimal (T11) - The budget for national research is still limited (T12) - Defense technology is still mostly imported (T13)

Table 5
Pairwise comparison matrix aggregation for Opportunity aspects

Criteria	O1	O2	O3	O4	O5	O6	O7	O8	O9	O10	O11	O12	O13	Weight
O1	1	2	1	2	1	2	2	2	1	2	1	2	1	0.103
O2	1/2	1	1/2	2	2	1	1	2	1	2	1	2	1	0.085
O3	1	2	1	2	2	2	2	2	2	2	1	2	2	0.121
O4	1/2	1/2	1/2	1	1/2	1/3	1	1/2	1/2	2	1/2	1/2	1/2	0.045
O5	1	1/2	1/2	2	1	1/2	2	1	2	2	2	1/2	1/2	0.078
O6	1/2	1	1/2	3	2	1	2	1/2	1/2	1	1/2	1/2	1/2	0.064
O7	1/2	1	1/2	1	1/2	1/2	1	2	1/2	1/2	1/2	1/2	1/2	0.048
O8	1/2	1/2	1/2	2	1	2	1/2	1	1/2	1/2	1/2	1/2	1/2	0.052
O9	1	1	1/2	2	1/2	2	2	2	1	2	1	2	1/2	0.085
O10	1/2	1/2	1/2	1/2	1/2	1	2	2	1/2	1	1	1/2	1/2	0.054
O11	1	1	1	2	1/2	2	2	2	1	1	1	1	1/2	0.081
O12	1/2	1/2	1/2	2	2	2	2	2	1/2	2	1	1	1	0.081
O13	1	1	1/2	2	2	2	2	2	2	2	2	1	1	0.103
CR =	0.052													1.000

Table 6
Scores and Weights for External Factors in Opportunity Aspects

No	External Strategy Factors	Weight	Rating	Value
O	**Opportunities**			
1	Indonesia’s free and active politics as rebalancing power	0.103	3	0.308
2	The South China Sea is an opportunity for a military capacity-building campaign	0.085	4	0.316
3	Indonesia’s strategic position as the World Maritime Defense Axis	0.121	4	0.485
4	Low wages for labor	0.045	4	0.166
5	Big market share for Indonesia	0.078	4	0.292
6	Abundant national natural resources	0.064	4	0.257
7	The Asia Pacific has 38% (more than a third) of the world's population	0.048	4	0.179
8	An abundant number of the labor force as a demographic bonus	0.052	4	0.193
9	Quite good growth of the digital economy	0.085	4	0.340
10	technology transfer from developed countries in the pacific region	0.054	4	0.219
11	Quite dynamic development of national technology in the field of defense	0.081	4	0.331
12	The rise of the national defense industry	0.081	4	0.337
13	Formation of defense industry super holding	0.103	4	0.434
	Total	1.000		3.856

Table 7
Pairwise comparison matrix aggregation for Threat aspects

Criteria	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	Weight
T1	1	2	2	1	2	1	2	2	1/2	1/2	1/2	1/2	1/2	0.072
T2	1/2	1	2	1/2	2	1	1/2	2	1/2	1/2	1/2	1/2	1/2	0.057
T3	1/2	1/2	1	1/2	1/2	2	1/2	2	1/2	2	2	2	2	0.092
T4	1	2	2	1	2	1	1/2	2	1/2	1/2	1/2	1/2	1/2	0.065
T5	1/2	1/2	2	1/2	1	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	0.043
T6	1	1	1/2	1	2	1	1	1/2	1/2	1/2	1/2	1/2	1/2	0.050
T7	1/2	2	2	2	2	2	1	1/2	2	1/2	1/2	1/2	1/2	0.076
T8	1/2	1/2	1/2	1/2	2	2	2	1	1	1	1/2	1/2	1/2	0.059
T9	2	2	2	2	2	2	1/2	1	1	2	1/2	1/2	1/2	0.085
T10	2	2	1/2	2	2	2	2	1	1/2	1	1/2	1/2	1/2	0.077
T11	2	2	1/2	2	2	2	2	2	2	2	1	1	1/2	0.102
T12	2	2	1/2	2	2	2	2	2	2	2	1	1	1/2	0.102
T13	2	2	1/2	2	2	2	2	2	2	2	2	2	1	0.121
CR =	0.095													1.000

Table 8
Scores and Weights for External Factors on Threat/Constraint Aspects

T	Threats			
1	The arms race of Asia Pacific countries	0.072	3	0.217
2	The SCS conflict has the potential as a means or a new battlefield	0.057	4	0.210
3	The massive radical right and radical left threats	0.092	4	0.342
4	military threat as a cross position from China and US	0.065	4	0.243
5	The threat of foreign workers from the Asia Pacific	0.043	4	0.161
6	The economic threat of the impact of the US and China trade war	0.050	3	0.162
7	Foreign ownership of national natural resources	0.076	3	0.227
8	Unequal education level constraints	0.059	4	0.237
9	Social inequality is still high	0.085	3	0.223
10	Limited job opportunities	0.077	3	0.220
11	Minimal growth of technology research	0.102	3	0.270
12	Limited budget for national research	0.102	2	0.245
13	Mostly imported defense technology	0.121	2	0.257
	Total	1.000		3.014

5.2 Internal Environment Analysis

The main component titles are held to prepare a universal defense, prepare active defensive defenses, and develop layered defenses. To develop a layered defense, military defense titles are synergized with non-military defense titles to carry out deterrence, face military threats, deal with non-military threats, carry out defense cooperation, and implement world peace. Military defense titles are held in an integrated manner in the land, sea, and air dimensions and are arranged in a balanced and proportional manner according to the geographical conditions of Indonesia.

Table 9
Internal Factor Analysis

ASPECT OF INFLUENCE	WEAKNESSES	STRENGTHS
Organization ('togetherness', business style revolution in Pentagon management, civilian-military integration)	- Not yet formed an integrated unit (W1) - Incomplete fulfillment of personnel (W2)	- There are joint Command units in each exercise (S1) - There is an Advance Operation Base (FOB/Forward Operation Base) (S2) - HR that continues to be added and improved (S3)
Technology (New IT integration into existing weapon systems and integrated C4ISR)	- The age of defense equipment tends to be old (W3) - The number of defense equipment is still limited in quality and quantity (W4) - The condition of defense equipment is still centered on the island of Java (W5) - There is no real-time information in the LCS (W6) area - The new operating control system is limited to Internal communication of each dimension (W7)	- National Alutsista Rejuvenation Program (S4) - The Rise of the National Defense Industry (S5) - Technology transfer from developed countries in the Asia Pacific (S6)
Doctrine and Operation Patterns (Experimenting with technology to create new types of warfare)	- Interoperability that has not been maximized between dimensions (W8) - Not yet established tactical communication and constraints on combined operations control center (W9)	- There is an office for *TNI* Operational Control Center (Tactical Level) (S7) - Strengthening alliances in the Pacific region (S8) - Multilateral joint exercises (S9)

The strength of the Indonesian Armed Forces (*TNI*) which is the Main Component is built, among others, through the modernization of defense equipment, increased maintenance and care, organizational development, and support for facilities

and infrastructure that are supported by the empowerment of the defense industry, and the professionalism of soldiers. Main Component Strengths were developed to be able to face increasingly complex challenges through the integrated and synergized use of *TNI* in the context of joint operations. Currently, the deployment of *TNI* is seen as less than optimal and is still centered on the island of Java. Most of these forces are also equipped with obsolete defense equipment and slow modernization. The *TNI's* capabilities are not evenly dispersed, and the defense equipment system's modernization towards an integrated system or interoperability is considered less than desirable. The RMA technique was used to examine the state of the *TNI's* power title based on the Integrated Three Forces *(Trimatra*) model.

Table 10
Pairwise comparison matrix aggregation for Strength aspect

Criteria	S1	S2	S3	S4	S5	S6	S7	S8	S9	Weight
S1	1	1	1/2	1/2	2	2	1	2	3	0.121
S2	1	1	1/2	1/2	2	2	1	3	2	0.122
S3	2	2	1	2	2	3	2	3	3	0.208
S4	2	2	1/2	1	1	2	2	2	2	0.151
S5	1/2	1/2	1/2	1	1	2	1/2	2	3	0.100
S6	1/2	1/2	1/3	1/2	1/2	1	1/2	2	2	0.070
S7	1	1	1/2	1/2	2	2	1	3	2	0.122
S8	1/2	1/3	1/3	1/2	1/2	1/2	1/3	1	2	0.057
S9	1/3	1/2	1/3	1/2	1/3	1/2	1/2	1/2	1	0.048
CR =	0.019									1.000

Table 11
Scores and Weights for Internal Factors in Strengths Aspects

No S	Internal Strategy Factor Strengths	Weight	Rating	Value
1	There is a joint command	0.121	4	0.451
2	There is an Operations Preliminary Base	0.122	3	0.365
3	HR that continues to be added and improved its capabilities	0.208	3	0.607
4	National Alutsista rejuvenation program	0.151	3	0.441
5	The rise of the National Defense Industry	0.100	3	0.292
6	Technology transfer from developed countries in the Asia Pacific	0.070	3	0.184
7	There is *TNI* Operational Control Center office (tactical level)	0.122	2	0.290
8	Strengthening alliances in the Pacific region	0.057	2	0.120
9	Multilateral joint training	0.048	2	0.088
	Total	1.000		2.838

Table 12
Pairwise comparison matrix aggregation for weaknesses aspects

Criteria	W1	W2	W3	W4	W5	W6	W7	W8	W9	Weight
W1	1	2	2	2	1/2	2	3	2	1/2	0.156
W2	1/2	1	1	2	2	2	2	2	1/2	0.132
W3	1/2	1	1	1	1/2	1/2	1/2	2	2	0.099
W4	1/2	1/2	1	1	1/2	1/2	1	1/2	1/2	0.062
W5	2	1/2	2	2	1	1/2	1	1/2	1/2	0.105
W6	1/2	1/2	2	2	2	1	2	2	1	0.129
W7	1/3	1/2	2	1	1	1/2	1	1	1	0.086
W8	1/2	1/2	1/2	2	2	1/2	1	1	1/2	0.084
W9	2	2	1/2	2	2	1	1	2	1	0.147
CR =	0.089									1.000

Table 13
Scores and Weights for Internal Factors on Weakness Aspects

W	Weaknesses			
1	Not yet formed an integrated unit	0.156	4	0.623
2	Incomplete fulfillment of personnel	0.132	4	0.491
3	The age of defense equipment tends to be old	0.099	3	0.289
4	The number of defense equipment is still limited	0.062	4	0.232
5	The condition of the main defense equipment system is still centered on Java Island	0.105	3	0.315
6	There is no real-time information in the SCS area	0.129	4	0.480
7	The new operating control system is limited to Internal communication	0.086	3	0.225
8	Interoperability that has not been maximized between dimensions	0.084	4	0.335
9	The absence of tactical communication and the constraints of a combined operation control center	0.147	4	0.548
Total		1.000		3.539

5.3 SWOT Matrix Analysis

In essence, the Implementation of National Defense contains 3 (three) basic things, namely about what is defended, what to defend it, and how to defend it. The substance of the National Defense Strategy is how to defend the Unitary State of the

Republic of Indonesia (NKRI) with all its interests. Therefore, the State Defense Posture is a reflection of the National Defense Strategy. The purpose of national defense is to maintain and protect state sovereignty, territorial integrity, and the safety of the nation from all forms of threats. National defense must be prepared early to have effective deterrence of the nation and state (Manihuruk, 2021). National defense aims to maintain and protect the sovereignty of the state, the territorial integrity of the Unitary State of the Republic of Indonesia, and the safety of the entire nation from all forms of threats. National defense is organized and prepared early by the Government through efforts to build and foster the nation's and state's deterrence capability. The implementation of defense cannot be separated from how the defense strategy is implemented and how the defense doctrine functions as a point of view of the defense component in carrying out its duties as well as the response of defense administrators to the threats and challenges that will be faced (Kristiyanto, 2021). The use of the Indonesian Armed Forces' power is directed at being able to overcome challenges and threats to national defense, both global, regional, and national issues, especially those that are rife recently, namely the issue of transnational crime, security issues that are closely related to international terrorism, maritime and air security issues, border security issues and other security issues with a non-military dimension (Herdjanto et al., 2019). For the deployment of forces, it is directed at realizing the effectiveness and efficiency of carrying out the *TNI's* main tasks in the South China Sea by taking steps to strengthen the title of an integrated *Trimatra TNI* centralized force, evaluating the title of territorial units to support operations in border areas with neighboring countries and the outermost islands. faced with the dynamics of threat developments, especially in the Natuna region. Based on the results of the IFAS and EFAS Matrix analysis, a strategy development model was obtained which consisted of SO strategy, ST strategy, WO strategy, and WT strategy. Strategies studied among others:

Table 14
Quadrant Analysis on IFAS and EFAS

S	W	Quadrant	Axis
2.838	3.539	-0.701	X
O	**T**	**Quadrant**	
3.856	3.014	0.843	Y

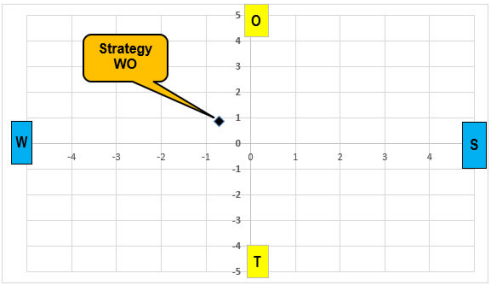

Fig. 3. SWOT Strategy Diagram Analysis

5.4 Strategy Concept towards Competitive Advantage

Based on four alternative strategies (SO, ST, WO, WT), it is necessary to know one of the strategies following the steps for developing the Indonesian Armed Forces in the South China Sea. From the results of the analysis of the QSPM matrix and SWOT diagram, the appropriate strategy is the WO strategy, which is to take the opportunities that exist in the strategic environment to improve the weaknesses of the *TNI's* capabilities in the South China Sea. The WO steps include the followings:

Table 15
Strategy and Coding of RMA Development towards Competitive Advantage

No	Strategy Correlation	Strategy Step	Coding Structure	Code
1.	W1;W2;O8; O3;O10;O13	Building strengths and defense capabilities in an integrated manner	1. Posture and defense structure	WO-1
2.	W4;W5;O11; O2;O12;O13	The deployment of *TNI* troops in the South China Sea and buffer areas supported by the construction of defense facilities and infrastructure	2. The TNI Troop Performance 3. Facilities and infrastructure	WO-2; WO-3
3.	W3;W4; O4;O5;06 O12;013	Utilizing the national defense industry in the context of increasing defense independence and rejuvenating defense equipment on a national scale	4. Defense industry	WO-4
4.	W6;W7;W8 O6;O8; O9;O10	Integrating all components and authorized forces in handling security disturbances in the South China Sea	5. All components and strength	WO-5
5.	W9;O9;O11	Increasing capacity and capability in monitoring and early detection through modernization of intelligence technology and increasing competence of human resources	6. Intelligence technology 7. Human resources	WO-6; WO-7
6.	W7;O9;O10; O11	Improving the effective and efficient protection of information systems and state secrets	8. Information systems and state secrets	WO-8

a. Building strength and defense capabilities in an integrated manner

In this strategy, the strengths and capabilities of the Land, Sea, and Air Forces will continue to be optimized and developed optimally. The strengthening and development of this dimension are carried out within the framework of an Integrated Tri Dimension that is capable of carrying out joint operations and has the strength and striking force as the foundation for building a deterrent effect.
The implementation of national defense does not only play a role in strengthening the military defense posture to support the implementation of national defense but what is even more crucial is to increase the deterrence effect of the military defense posture against outsiders who will interfere with state sovereignty. Faced with the geographical conditions of an archipelagic country, the military defense architecture must be prepared early as one of the prerequisites for the success of the national defense system in realizing the world maritime axis.

b. The deployment of Indonesian Armed Forces troops in the South China Sea and buffer areas supported by the construction of defense facilities and infrastructure

The concept of the title of Indonesian Armed Forces troops is a strategic matter, both for the sake of long-term defense. The concept of the title of *TNI* troops must pay attention to the change in the paradigm of national development which is no longer Java-centric but must be Indonesia-centric. The country's vast territory cannot be protected only from Java, there need to be strengthened areas including the South China Sea area. The placement of the title of *TNI* troops is strengthened in the outermost and foremost points of the Unitary State of the Republic of Indonesia, which are also potential areas as centers of driving and national economic growth. With this condition, the *TNI* will be better prepared to face the future of war in the midst of the geographical condition of the country as an archipelagic country.
Furthermore, adequate facilities and infrastructure must be available to support the existing military titles. Security infrastructure, as one of the supporting components of national defense, plays a critical role in assisting the community's economic, social, and cultural activities. *TNI* military operations on land, sea, and air will benefit from national infrastructure facilities. Thus, in times of peace, national infrastructure facilities need to be organized and prepared. Thus, they can be utilized for defense purposes when needed

c. Utilizing the national defense industry to increase the independence of defense and rejuvenation of defense equipment on a national scale

The TNI has an interest in the development of the domestic defense industry, as a form of independence in supporting and meeting the needs of the *TNI's* Main Equipment and Weapon Systems (*Alat Utama dan Sistem Senjata,* abbreviated as *Alutsista*). The rejuvenation of the defense equipment system is seen as very urgent, because with the increasing intensity and escalation of threats, due to the development of the strategic environment, it demands the professionalism of the *TNI*. Currently, many countries are competing to develop their defense industry to be at the forefront, including Indonesia, which is starting to do so. The development of the independence of the domestic defense industry is a real effort in building internal capabilities and rejuvenating the defense equipment system.

d. Integrating all components and authorized forces in handling security disturbances in the South China Sea

The law mandates a National Defense System that is universal, involves all citizens, territories, and other national resources, and is prepared early by the government, is carried out in a total, integrated, directed, and continuous manner to uphold state sovereignty, territorial integrity and the safety of the entire nation from all threats, through efforts to build the strength and capability of the national defense, the national defense system is universal, combining the military defense system and the non-military defense system. To deal with military threats, the *TNI* is placed as the main component, supported by reserve components and supporting components, while to deal with non-military threats, government institutions outside the defense sector are placed as the main element, according to the form and nature of the threats faced, supported by other elements of the nation's power.

e. Increasing capacity and capability in monitoring and early detection through modernization of intelligence technology and increasing competence of human resources

To support intelligence performance and the challenges that will be faced in the future, especially crime in the field of technology, it is necessary to build human resources (HR) along with the modernization of equipment. The maximum performance of intelligence enables national development to run smoothly in accordance with expectations, the integrity of the nation or unity and integrity can be maintained and can secure the national interest from threats both from within and from outside.

f. Improving the effective and efficient protection of information systems and state secrets

The currently rapid development of information and communication technology has touched almost every aspect of life. Information technology is not only used in the industrial or economic fields, but also in the defense sector, which uses

information technology a lot for the process of policy-making and decision-making. Advances in information technology have also shifted the nature of threats that come from the state (state threat) through the use of weapons of mass destruction into groups (non-state threats) with high technology mastery. Threats to the state are no longer related to military power, but have a wider spectrum, namely non-military, such as the threat of "cybercrime".

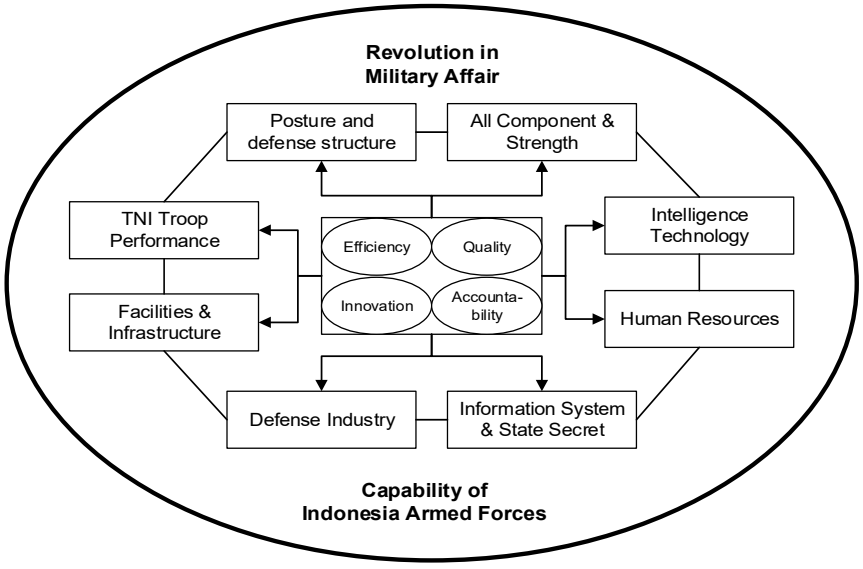

Fig. 4. Revolution in Military Affairs (RMA) Strategy Concept towards a Competitive Advantage in the South China Sea

5.5 Hierarchy Model and Weighting

In designing the hierarchical structure of the AHP, the aim is to develop a common framework that meets the needs of analysts in an RMA development strategy in the South China Sea based on Competitive Advantage. AHP begins by breaking down a complex multi-criteria problem into a hierarchy where each level consists of several manageable elements which are then broken down into sets of other elements. Considering the critical aspect of this step for the AHP methodology, a structure has been created following the advice of expert judgment. The AHP hierarchy developed in this study was a three-level tree where the top-level represents the main objectives of the RMA development strategy and the lowest level consisted of alternative substrates that have been obtained from the SWOT analysis. Aspects of the criteria in the second hierarchy that affect the second goal were related to four aspects of competitive advantage, namely efficiency, innovation, quality, and accountability. Furthermore, the third hierarchy consisted of eight alternatives, namely defense posture and structure, *TNI* troop titles, facilities and infrastructure, defense industry, all components and forces, intelligence technology, human resources, information systems, and state secrets. The hierarchical model is shown in Fig. 5.

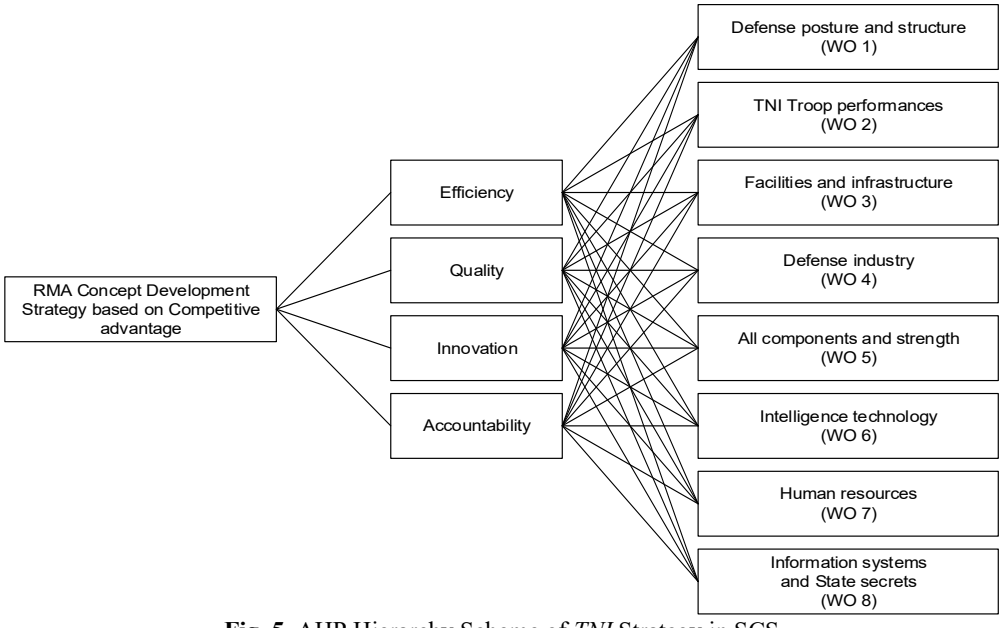

Fig. 5. AHP Hierarchy Scheme of *TNI* Strategy in SCS

Table 16
Pairwise comparison matrix aggregation for the main criteria

Level 2 Criteria	Efficiency	Innovation	Quality	Accountability	Weight
Efficiency	1	1	1/2	1	0.204
Innovation	1	1	1/2	1	0.204
Quality	2	2	1	1	0.346
Accountability	1	1	1	1	0.246
CR= 0.02					1.000

Based on formula 1 and formula 3, a pairwise comparison matrix was determined for each hierarchy as presented in Table 16 above. The results of the expert assessment in terms of the consistency and consensus ratio CR were smaller than "0.1", which was 0.02. Thus, it is following the principle of consistency. Based on the rankings, the resulting weights are Quality (0.346), Accountability (0.246), Efficiency (0.204), and Innovations (0.204).

Table 17
The application of strategic concepts to the *TNI's* RMA capability development in the South China Sea

Criteria	Weight	WO1	WO2	WO3	WO4	WO5	WO6	WO7	WO8
Efficiency	0.204	0.154	0.097	0.141	0.059	0.171	0.075	0.177	0.126
Innovation	0.204	0.128	0.065	0.085	0.111	0.177	0.102	0.194	0.138
Quality	0.346	0.182	0.065	0.101	0.092	0.153	0.098	0.180	0.130
Accountability	0.246	0.109	0.077	0.114	0.090	0.156	0.095	0.170	0.188
Alternate Weight		0.147	0.075	0.109	0.089	0.162	0.093	0.159	0.145
Rank		3	8	5	7	1	6	2	4

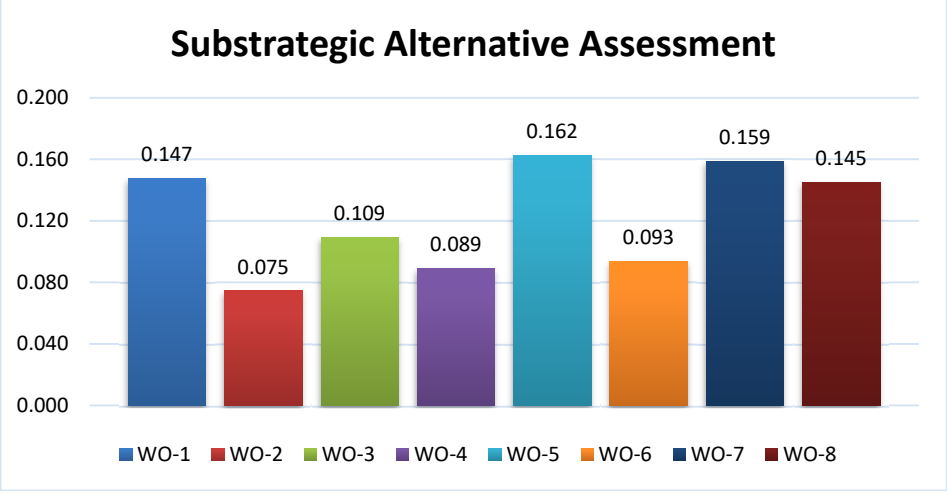

Fig. 6. Assessment of the *TNI's* RMA development strategy towards a competitive advantage in the South China Sea

Based on the results of the analysis in Table 17 and Fig. **6**, the strategic concept can be implemented in the order according to the following weights: The combination of all components and forces in handling security disturbances in the South China Sea (0.162); Increased competence of human resources (0.159); Development of integrated defense forces and capabilities (0.147); protection of information systems and state secrets (0.145); Development of defense facilities and infrastructure (0.109); increasing the capacity and capability of modernizing intelligence technology (0.093); utilization and capacity building of the national defense industry (0.089); *TNI* troop deployments in the South Natuna Sea (0.075).

5.6 Sensitivity Analysis

Sensitivity analysis was carried out on the priority weights of the decision criteria, which can occur due to policy changes, leading decision-makers to change their judgment (Chatzimouratidis & Pilavachi, 2009; Hsu et al., 2008; Ozdemir & Demirel, 2018). The change in the assessment might cause a change in the order of priority in the alternative goals (Balusa & Gorai, 2019). Sensitivity analysis is able to show how much a weight change will change the order of priority. In this study, the sensitivity analysis considered the output effect of changing the weight of the criteria on the overall score and ranking of the substrate for the development of RMA capabilities by the Indonesian Armed Forces toward competitive advantage in the South China Sea. At this stage, the weight of the criteria values was changed. Current priority weights for criteria, for example, the efficiency criterion, which was weighted 20% in the reference scenario, was weighted between 0-91% in the four different characteristics in the sensitivity analysis. Then the maximum effect (when 91% weighting was required) of each was examined and cases of equal weight were also considered concerning the initial reference weight scenario. As a result, the overall score and ranking, as well as changes according to the criteria, and weight changes were

presented. Thus, decision-makers can project the trend of scores and rankings of eight types of sub-strategy for RMA capability development by the *TNI*.

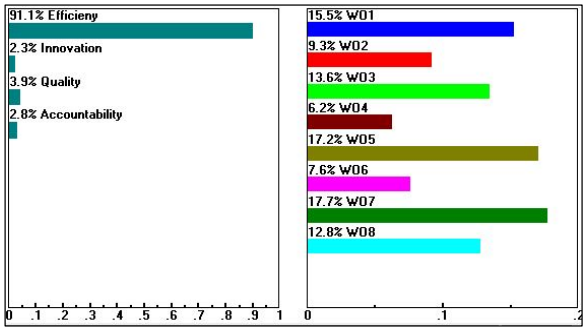

Fig. 7. The dynamic sensitivity for the efficiency criteria from the initial weight of 0.204 (20%) to 0.911 (91.1%)

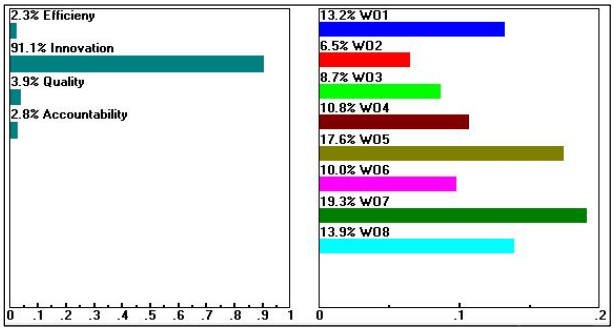

Fig. 8. Dynamic sensitivity for Innovation criteria from initial weight 0.204 (20%) to 0.911 (91.1%)

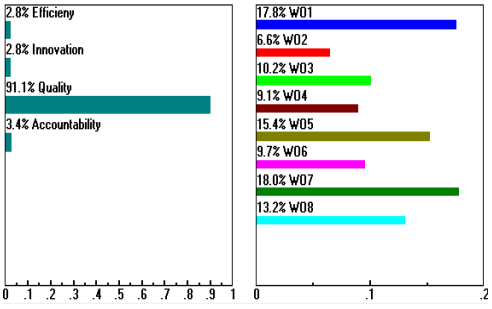

Fig. 9. Dynamic sensitivity for Quality criteria from the initial weight of 0.346 (34.6%) to 0.911 (91.1%)

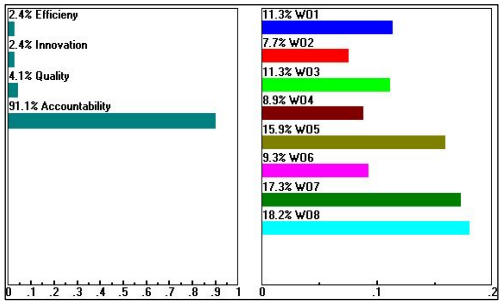

Fig. 10. Dynamic sensitivity for Quality criteria from initial weight 0.246 (24.6%) to 0.911 (91.1%)

Fig. 7 presents the efficiency criteria had increased from the initial weight of 0.204 (20%) to 0.911 (91.1%). Then, another change was in the priority of the sub-strategy policy, namely human resources which had increased from 0.159 (15.9%) to 0.177 (17.7%) to be the first priority. Meanwhile, the second priority was the sub-strategy of all components and strength which had increased from the initial weight of 0.162 (16.2%) to 0.172 (17.2%).

Fig. 8 shows that the innovation criteria had increased from the initial weight of 0.204 (20%) to 0.911 (91.1%). There was a change in the priority of the sub-strategy policy, namely human recourse which had increased from 0.159 (15.9%) to 0.193 (19.3%) to be the first priority. Fig. **9** visualizes the quality criteria which had increased from the initial weight of 0.346 (34.6%) to 0.911 (91.1%). There was a change in the priority of the sub-strategy policy, namely human resources which had increased from 0.159 (15.9%) to 0.188 (18.8%) to be the first priority. Fig. **10** presents the accountability criteria which had increased from the initial weight of 0.246 (24.6%) to 0.911 (91.1%). There was a change in the first priority in the sub-strategy, namely the information systems and state secrets sub-strategy from the initial weight of 0.145 (14.5%) to 0.182 (18.2%)

6. Conclusion

The dynamics of the conflict in the South China Sea (SCS) have begun to enter a new chapter. Currently, the South China Sea (LCS) is a flashpoint in the Asia Pacific region. Although Indonesia is not included in the vortex of conflict in these waters, the existence of a struggle for interests between the two big countries is not impossible to have an impact on Indonesia. The demand in observing current trends, however, the *TNI* needs to consider the concept of Revolution in Military Affairs (RMA). These conditions are needed to achieve a competitive advantage in the South China Sea region.

This study aims to provide an analysis of the concept of the Revolution in Military Affairs (RMA) strategy by the Indonesian Armed Forces toward Competitive Advantage in the South China Sea region. Based on the results of the research analysis, the external factors obtained 13 aspects of opportunities and 13 aspects of threats. Meanwhile, internal factors obtained 9 aspects of strength and 9 aspects of weakness. Furthermore, the results of the analysis of the QSPM matrix obtained a strategy following the development of *TNI* capabilities towards a competitive advantage in the South China Sea, namely the WO strategy. The WO strategy consisted of 6 substrate aspects with eight sub-factors, namely the combination of all components and strengths in handling security disturbances in the South China Sea (0.162), increasing competence of human resources (0.159), developing integrated defense forces and capabilities (0.147), protecting information systems and state secrets (0.145), developing defense facilities and infrastructure (0.109), increasing the capacity and capability of modernizing intelligence technology (0.093), utilizing and building the capacity of the national defense industry (0.089), and deploying *TNI* troops in the South China Sea (0.075).

The results of sensitivity analysis indicate that the efficiency criteria increased from the initial weight of 0.204 (20%) to 0.911 (91.1%). Then, there was a change in the priority of the sub-strategy policy, namely human resources increased from 0.159 (15.9%) to 0.177 (17.7%) to be the first priority. When the innovation criteria increased from the initial weight of 0.204 (20%) to 0.911 (91.1%), then there was a change in the priority of the sub-strategy policy, namely human resources increased from 0.159 (15.9%) to 0.193 (19.3%) to be the first priority. When the Quality criteria increased from the initial weight of 0.346 (34.6%) to 0.911 (91.1%), there was a change in the priority of the sub-strategy policy, namely human resources increased from 0.159 (15.9%) to 0.188 (18.8%) to be the first priority. When the accountability criteria increased from the initial weight of 0.246 (24.6%) to 0.911 (91.1%), there was a change in the first priority in the sub-strategy, namely the information systems and state secrets sub-strategy from the initial weight of 0.145 (14.5%) to 0.182 (18.2%).
This study has several limitations. First, this study has not discussed the ongoing competitive advantage of the Indonesian Armed Forces (*TNI*) in the South China Sea based on RMA. Thus, future research can implement a simulation model to provide scenarios for conflict resolution in the South China Sea. Second, further research can provide comparative studies of competitive advantages for several countries related to disputes in the South China Sea. This model can be used as a reference in making further decisions. Third, further research can be carried out by identifying the critical factors that are the most influential aspects by giving weight to each of these related aspects.

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