

DEFENSE OFFSET STRATEGY FOR DEVELOPMENT OF THE NATIONAL DEFENSE INDUSTRY IN INDONESIA

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Basically, Indonesia has implemented a national defense offset policy. However, there are still obstacles in the implementation of these policies. This study aims at developing a strategy of implementing the Defense Offset to Strengthen the National Defense Industry. This study used the PEST (Politics, Economy, Social, Technology) analysis method, Borda method, and SWOT (Strengths, Weaknesses, Opportunities, Threats). This study is expected to provide an analysis of the optimization of defense offsets implementation. The analysis results of the internal factor obtained 7 aspects of strength and 13 aspects of weakness. The analysis results of external factors obtained 11 aspects of opportunity and 13 aspects of the threat. The analysis results of the QSPM matrix found that the strategy that is in accordance with the policy of implementing defense offset is the SO strategy. SO Strategy consists of 18 sub-strategy steps, which are aspects of government policy 6 sub-strategies; aspects of developing human resources 4 sub-strategies; aspects of the defense industry infrastructure 8 sub-strategies.

Key words: *The Indonesian National Armed Forces (TNI), defense offset, defense industry, borda count method, SWOT (Strength, Weakness, Opportunity, Threat), PEST (Politics, Economy, Social, Technology)*

1. INTRODUCTION

To face the challenge of tasks of The Indonesian National Armed Forces (TNI) on forward, the concrete manifestation of technological dominance in the TNI system is mainly in the form of weapon systems used covering the main equipment, with all its supporters, as well as the capabilities and skills of TNI soldiers in a professional manner [1]. Certainly, the level of technology requires a strong and independent national defense industry [2]. The development of the domestic defense industry is one of the important aspects of a country's efforts to develop a defense system independently. It is related to the fulfillment of needs both in providing quality

and quantity of defense equipment in which it is in accordance with regional characteristics, and it eliminates political dependence on other countries [3]. One way to get a strong and independent defense industry, including qualified defense technology, is through an offset policy [4].

Basically, Indonesia has implemented a national defense offset policy [2]. However, there are still obstacles in the implementation of these policies, among others:

- 1) The absence of policies or regulations supporting the defense industry in the implementation of defense offset;
- 2) Capabilities of HR in supporting the development of defense offset are still minimal and limited; and

- 3) The facilities and infrastructures in the defense industry are still unable to fully support the defense offset policy.

This study aims at developing a strategy of implementing the Defense Offset to Strengthen the National Defense Industry. This study used the PEST (Politics, Economy, Social, Technology) analysis method, Borda method, and SWOT (Strength, Weakness, Opportunity, Threat). PEST analysis was used to identify the related external factors having an effect. The Borda method was used to give a score to criteria of internal and external factors. SWOT was used to develop a defense offset implementation strategy. This study is expected to provide an analysis of the optimization of defense offsets implementation and to formulate priority steps for the optimization of defense offset policies implementation to support the independence of Main Equipment and Weapon Systems.

There are several previous studies as references:

- Hajami and Chinoperekweyi (2019) critically analyzed the role of offsets and offset management in the aerospace industry [21].
- Platzgummer (2015) explains how balancing agents use performance management to control, direct, improve, and provide accountability to the public in the implementation of defense offset [22].
- Terziev, et al. (2017) explains the role of offsets as economic operations that represent a variety of industry and trade practices [5].

References about PEST:

- Alava et al (2018) explain the PEST analysis on the neutrosophic map [12].
- Acar (2015) explains about the analysis of PEST in an unstable economic environment [23].

- Putra et al (2017) explained the PEST analysis for Indonesian maritime security [24].
- Keung-Ho (2014) proposed the construction of a systemic PEST analysis diagram [11].

References about SWOT in military:

- Yogi et al (2017) SWOT to provide analysis, appropriate strategies that can be used to plan base relocation [19].
- Susilo et al (2018) explained the strategy of developing the Navy's posture to support operational tasks [25].
- Wahyudi et al (2019) explained the strategy of KRI dr. Soeharso in HA/DR operation using SWOT-ISM [20].
- Herdijanto et al (2019) explained the strategy of Revolution Military affair using SWOT analysis.

In this study, there is systematic writing in which the second section will discuss defense offset theory, PEST analysis, SWOT theory, defense industry. Then, it explains data collection, data processing, and data analysis. The third section will discuss the results of the analysis and discussion. The fourth section explains the conclusions of the study.

2. MATERIAL/METHOD

2.1. Defense Offset

Basically, Defense offset is a process of purchasing weapons or mutual investment agreed by weapons manufacturers or suppliers in return for an agreement to purchase military services and equipment. Defense offset in defense trade has been carried out in the world arms trade for the past five decades since the first offset between the US and Europe in arms trade [6].

There are two types of offsets: direct and indirect offset. Direct offset is defined as goods or services which are directly related to military equipment being sold [7]. There are three types of direct offset, which are: 1) licensed

production; 2) Co-production; and 3) Co-development. [8]

Meanwhile, indirect offset is defined as goods and services which is not directly related to purchases of military products, but it is attached as agreements in the process of buying and selling military and defense equipment. There are at least four types of indirect offsets, which are: 1) Barter; 2) Counter-purchase; 3) Counter-investment; and 4) Buyback. [9]

2.2. Defense industry

Based on the Act No. 16, 2012 concerning the Defense industry, the purpose of the formation of that is to revive the national defense industry, because the needs of Indonesia for Defense Industry products currently are very high and are expected to revitalize our defense industry. The presence of Act No. 16, 2012 concerning Defense Industry appeared at a right moment because The Indonesian National Armed Forces (TNI) is conducting the process of modernizing the defense equipment, and TNI has had a strategic plan on modernization of Main Equipment and Weapon Systems (Alutsista) in three stages for fifteen years [1].

Republic of Indonesia Presidential Regulation No. 59, 2013 concerning the Defense Industry Policy Committee - The empowerment of the defense industry to develop the national industry into a defense industry directed at: meeting the needs of Defense equipment, encouraging in producing products for defense and non-defense interests, cooperation with foreign defense industries both production and development. The Integration of the Defense Industry development by considering the science and technology mastery and technology transfer through cooperation between ministry and other institutions within the scope of the Defense Industry Policy Committee (KKIP) to create a strong, independent, and competitive defense industry [2].

2.3. PEST Analysis

PEST analysis is related to the influence of the environment on business [10].

According to Ward and Peppard (2002) PEST analysis is an analysis of business external environmental factors which include the political, economic, social and technological fields.

PEST analysis is a simple and effective tool for identifying which external forces might affect your business. This power needs to be identified because it can create opportunities and threats. Therefore the purpose of conducting PEST is to: 1) find current external factors that can affect the organization; 2) Identify external factors that might change in the future; 3) Take advantage of opportunities or avoid threats from external factors [11].

The result of the PEST Analysis is an understanding of the whole picture of the company. This analysis can also be used to assess new market potential. The more negative forces that affect the market, the more difficult it is to do business in that market. Difficulties encountered in these markets can reduce the company's profit potential and limit the company's business movements in the market [12].

2.4. Borda Method

Borda Rules are included in the class of ranking rules in which points are awarded to each candidate or alternate according to rank in voter preferences [13]. Each decision-maker must order an alternate option according to the preference specified. One point is given to the highest choice alternative; the second received two points and so on [14].

In this method if there are n alternatives, the first choice of voters is given $(m - 1)$ points, the second point $(m - 2)$ and so on to the last option, which is 0 points. Then, in each alternative, summaries of all points are given from all decision-makers (or by criteria). The alternative is to rank in the order corresponding to the

number, the fewer points gained, the better the alternate in the rankings.

The formula describes as [15]:

$$P_a = \sum_{i=1}^n r_{ai}$$

Where P_a is the total number of points obtained by alternative a and r_{ai} is the rank of alternative a in criterion i .

- a. Determining criteria related to the educational system of the Indonesian Navy in order to support technology mastery.
- b. Giving the value of the related criteria and determining the priority in the strategy implementation.

2.5. SWOT Analysis

SWOT analysis is the systematic identification of various factors to formulate a company's strategy [16]. This analysis is based on a logic that can maximize strengths and opportunities, but simultaneously minimize weaknesses and threats. The strategic decision-making process is always related to the development of the company's mission, goals, strategies and policies [17].

Thus, strategic planning must analyze the factors of the company's strategy (strengths, weaknesses, opportunities and threats) in the current conditions.

2.6. SWOT Elements

SWOT elements consist of Strength, Weakness, Opportunity, Opportunity, Threats. External and internal factors According to [26] if we are to analyze more deeply SWOT, it is necessary to look at external factors and internal as an important part in the SWOT analysis. They are:

- a. *External Factors.*

These external factors influence the formation of opportunities and threats (O and T), where this factor is related to conditions that occur outside the company that affects the company's decision making. These factors include the industrial, economic, political, legal, technological, population and socio-cultural environments [18].

- b. *Internal Factors.*

These internal factors affect the formation of strengths and weaknesses (S and W). Where this factor is related to the conditions that occur in the company, which also influences the formation of company decision making. These internal factors include all kinds of functional management: finance, operations, human resources, research and development, management information systems and corporate culture.

SWOT analysis compares the external factors of opportunity and threat with the internal factors of strengths and weaknesses. Internal factors are entered into a matrix called the internal strategy factor matrix or IFAS (Internal Strategic Factor Analysis Summary). External factors are entered into a matrix called the EFAS external strategy matrix (External Strategic Factor Analysis Summary). After the internal and external strategy factor matrix is completed, the results are then included in a quantitative model, the SWOT matrix to formulate competitive strategies in the organization [19].

Table 1. IFAS and EFAS Matrix of SWOT Strategies.

Aspect	Weight	Rating	B x R
Aspect 1	X	Y	X.Y
Aspect 2	X	Y	X.Y
Aspect 3	X	Y	X.Y

2.7. Flowchart of Research.

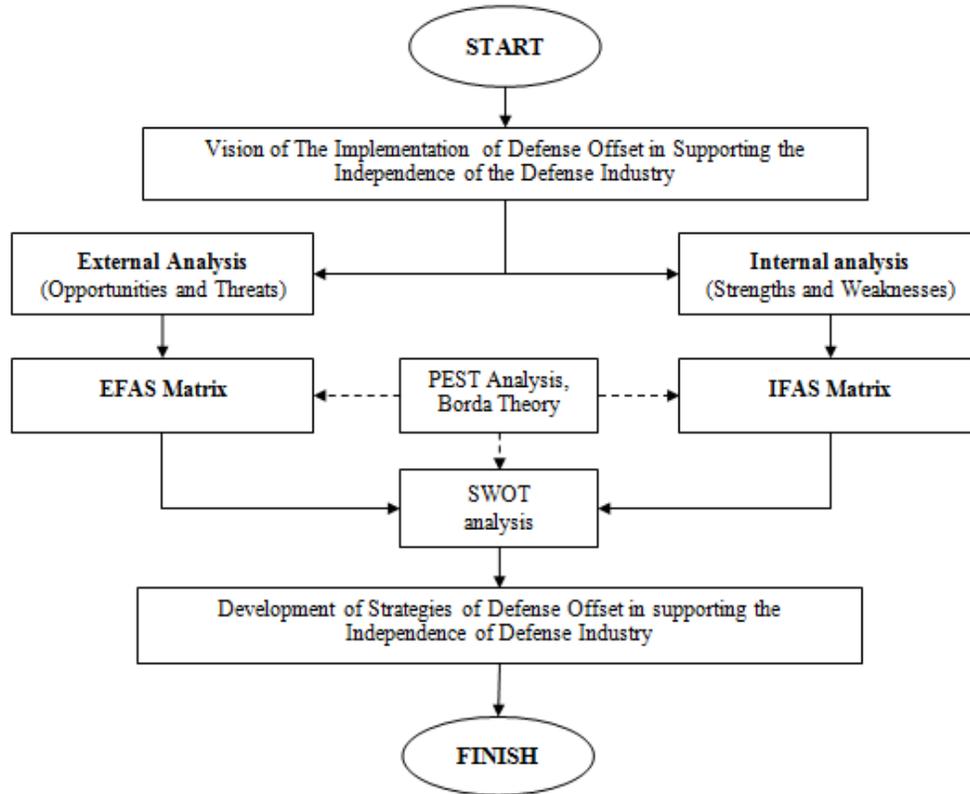


Fig. 1. Flowchart of Research.

The development of strategy of the concept of defense offset implementation in the initiation step starts with setting vision and mission. The second step is to identify the external and internal aspects. External aspects are opportunities and threats affected by the developments of global, regional and national strategic environments. Internal aspects are in the form of strength and weakness affected by current conditions in the implementation of defense offset. The third, sets the IFAS and EFAS matrices of each variable obtained and gives a score to the related criteria. The fourth, it sets a development strategy from the results of giving a score by identifying the strategy quadrant (SO, ST, WO, WT).

In this study, data collection techniques used were a questionnaire. This technique is a

method of data collection used to collect data by distributing the list of questions to the expert so that the expert provides the answer. The type of questionnaire used is an open questionnaire in which the expert is able to give the information related to the object of research in the implementation of defense offset as many as possible. After the data from the experts was collected, the data is compiled and identified based on the carried-out criteria. Then, further analysis is carried out.

Table 2. Expert choice in this research.

No	Expert Person	Number	Code
1	PT. Pindad	2 experts	E1-E2
2	PT. PAL	2 experts	E3-E4
3	PT. DI	2 experts	E5-E6
4	Ministry of Defense	2 experts	E7-E8
5	The Indonesian National Armed Forces Headquarters	2 experts	E9-E10

The subjects in this study were the stakeholders related to the implementation of defense offset. As planned, some of them include:

- a. Chief of Defense Industry.
 - 1) PT. Pindad (2 Expert).
 - 2) PT. PAL (2 Expert).
 - 3) PT. DI (2 Expert).
- b. Ministry of Defense. (2 Expert).
- c. The Indonesian National Armed Forces Headquarters. (2 Expert).

from the grip of the West. The weapons assistance was promised with technology transfer allowing Indonesia to gradually take care of the equipment itself and to meet its defense weapons needs. The defense offset mechanism in the procurement of defense weapons has been carried out with three types of offsets: purchasing licenses, co-production, and co-development, but the offset mechanism has not been able to sustain the needs of defense equipment in Indonesia.

Table 3. Scores of Likert Scale.

Score	Description
1	Very Bad
2	Bad
3	Moderate
4	Good
5	Very Good

Indonesia has quite a number of parties involved in the defense industry, but both Indonesian state-owned and private-owned companies have not been able to organize the domestic defense industry. Indonesian companies, especially private-owned companies, most of them are becoming agents, distributors and re-sellers of foreign-manufacturers products. This condition causes the defense and security equipment needed by the Indonesian National Armed Forces (TNI) and The Indonesian National Police (Polri) not to be fully produced domestically.

3. RESULT & DISCUSSION

3.1. Analysis of Internal Factor

Actually, the practice of defense offset in Indonesia began in the 1960s when Indonesia received weapons assistance from the Soviet Union for the campaign to liberate West Papua

Based on the results of the study, analysis of internal factors include:

Table 4. Analysis of internal factors for defense offset.

INFLUENCE ASPECT	STRENGTH FACTORS	WEAKNESS FACTORS
Policy	<ul style="list-style-type: none"> 1) Policy of Defense Independence 2) Policy of Defense Budget Improvement 3) Establishment of KKIP. 	<ul style="list-style-type: none"> 1) There is no policy of the independence of 100% of Main Equipment and Weapon Systems. 2) There is still the dependence of several components of Main

INFLUENCE ASPECT	STRENGTH FACTORS	WEAKNESS FACTORS
		Equipment and Weapon Systems. 3) The absence of a holding company for the defense industry. 4) The budget for implementing defense offset policies is still limited.
HR	1) Quite experienced HR 2) The level of HR education is quite high.	1) The ability or HR skills are still limited to stage three of defense offset. 2) Weak regeneration and recruitment management. 3) Many existing human resources have entered retirement age. 4) Lack of expertise.
Defense Industry	1) Previous experience in establishing Main Equipment and Weapon Systems. 2) The rise of national defense industry exports.	1) The quality and quantity of the defense industry are still limited. 2) Production capacity is still limited. 3) Old production machines technology. 4) Investment and capital are still limited. 5) The R&D Institution is still sectorial.

The implementation of defense offset has been regulated in Act No. 16, 2012 concerning the defense industry. The ability of the defense industry in establishing main equipment and weapon systems can be said to be capable and has the capability because it is supported by several facilities such as production facilities, IT facilities, human resources and financial facilities. However, certain programs, such as TOT submarines in the framework of Whole Local Production have not been implemented because there is equipment that has not been met due to budget constraints.

The defense industry played a role as an operational implementer needing the support of various parties such as the government as a regulator and other parties such as the TNI or other domestic industries. One of the important

things to increase the capacity and capability of a reliable defense industry is the opportunity given to the defense industry to transform in the technology sector, one of which is the opportunity to be able to do TOT from countries having technology.

On the other hand, the existing investments, such as infrastructure, need to be supported by order continuity because the existing infrastructure has a high depreciation so that if it is not supported by an order, it will be a financial burden. The suitability of the budget certainly becomes an influential thing in the implementation of defense offset. The government as one giving the authority and the regulation of the defense budget certainly has its own calculations. What is important for the defense industry is the support in the

development of technological capabilities (e.g. TOT), infrastructure, industrial component support, and order continuity.

In the aspect of human resources, the ability to produce main equipment and weapon systems is adequate. This is because workers in the defense industry already have expertise and are specifically certified in the production of main equipment and weapon systems.

However, if there is a program for the recruitment of Indonesian workers in overseas, it will have a positive impact on the defense industry. The overseas workers have superior knowledge and may have more insights due to their relationships and networks. Thus, this advantage can be utilized for the advancement of the domestic defense industry. In addition, constructive positive work cultures as overseas can be applied in Indonesia.

Table 5. Result of Scoring and Weighting for Internal Factor (Strength & Weakness).

No	Factor of Internal Strategy	Score	Rating	Value
S	Strength			
1	Policy of Defense Independence	0,223	4	0,893
2	Policy of Defense Budget Improvement	0,188	4	0,750
3	Establishment of KKIP	0,152	4	0,607
4	Quite experienced HR	0,125	4	0,500
5	The level of HR education is quite high	0,045	3	0,134
6	Previous experience in establishing main equipment and weapon systems	0,116	4	0,464
7	The rise of national defense industry exports	0,152	4	0,607
Total		1,000		3,955
W	Weakness			
1	There is no policy of the independence of 100% of Main Equipment and Weapon Systems.	0,089	3	0,268
2	There is still the dependence of several components of Main Equipment and Weapon Systems.	0,024	4	0,097
3	The absence of a holding company for the defense industry.	0,114	3	0,341
4	The budget for implementing defense offset policies is still limited.	0,097	3	0,292
5	The ability or HR skills are still limited to stage three of defense offset.	0,016	3	0,049
6	Weak regeneration and recruitment management.	0,046	3	0,138
7	Many existing human resources have entered retirement age.	0,041	3	0,122
8	Lack of expertise.	0,016	4	0,065
9	The quality and quantity of the defense industry is still limited.	0,130	4	0,519
10	Production capacity is still limited.	0,065	4	0,259
11	Old production machines technology.	0,086	3	0,259
12	Investment and capital are still limited.	0,135	4	0,541

No	Factor of Internal Strategy	Score	Rating	Value
13	The R&D Institution is still sectorial.	0,049	3	0,146
Total		1,000		3,095

3.2. Analysis of External factor.

The development of national defense is carried out to uphold national sovereignty, to maintain the territorial integrity of the Unitary State of the Republic of Indonesia, and to keep the safety of all nations from military and non-military threats. Indicators of defense development progress are marked by an increase in the readiness of personnel and main equipment and weapon systems, as well as the implementation of military training and joint training in accordance with the plan in an ongoing manner.

Technological aspects, globalization has an impact on the change of attitudes, values, the

development of science and technology, and a better level of life. Globalization in the era of Industrial Revolution 4.0 also caused Revolutionary in Military Affairs (RMA) having the implications for changes in war strategy and combat tactics in the military world. Drastic and rapid technological changes emerging during the era of Industrial Revolution 4.0 forced the military to adapt more quickly and to evolve to make major changes. TNI is preparing for the development of a new world order influenced by the era of Industrial Revolution 4.0.

Based on the results of the study, analysis of external factors includes:

Table 6. Analysis of External Factor for Defense Offset.

INFLUENCE ASPECT	OPPORTUNITY FACTORS	THREAT FACTORS
Politic	<ol style="list-style-type: none"> 1) Countries with Active-Free Politics 2) Government Policy Regarding the Defense Independence. 3) Policy on the Prohibition of Export of Raw Natural Resources. 	<ol style="list-style-type: none"> 1) The uncertainty of world politics. 2) National democracy dividing the unity of the generation of nation. 3) The threat of an embargo of main equipment and weapon systems
Economy	<ol style="list-style-type: none"> 1) The Increase of defense budget. 2) Export some main equipment and weapon systems to the Regional area. 3) Adequate natural resources. 4) Investment in the Defense Industry is increasing. 	<ol style="list-style-type: none"> 1) The uncertainty of the world economy. 2) A trade war between the US and China. 3) Soaring world oil prices. 4) World currency instability.
Social Culture	<ol style="list-style-type: none"> 1) Abundant Human Resources for workforce 2) The level of education is quite high. 	<ol style="list-style-type: none"> 1) Threats from the left-right political spectrum. 2) Unequal education and economic disparity. 3) The threat of taking over technology experts.
Technology	<ol style="list-style-type: none"> 1) The ability of the defense industry 	<ol style="list-style-type: none"> 1) A technological war between

INFLUENCE ASPECT	OPPORTUNITY FACTORS	THREAT FACTORS
	continues to be driven. 2) The development of national technology is quite dynamic.	superpowers. 2) The threat of cyber-attacks 3) Experts are limited.

3.3. Analysis of opportunity and threat

a. Opportunity.

1) Political Aspects.

Active-free political system of Indonesia provides several opportunities in implementing defense cooperation with several friendly countries. Several countries having advantages in the field of weaponry and the defense industry have provided opportunities in implementing defense offset policies: 1) South Korea; 2) Russia; 3) Belgium; 4) Netherlands; 5) China; 6) Turkey; 7) and several other friendly countries. This condition is supported by the government's program in defense independence with the issuance of Act No. 16, 2012 concerning the defense industry stating that the development of the defense industry is an integrated part of the national resource management strategic planning.

2) Economic Aspects

The government stated that the increase in the budget of The Indonesian National Armed Forces or TNI would be adjusted to the growth of state revenue. The government currently allocates defense spending of 0.9% gross domestic product (GDP). For the future, the allocation will be increased in line with an increase in tax revenue. With this change, the national budget for the TNI could increase to Rp150 trillion-Rp200 trillion in the next two to four years. The budget will be allocated to increase welfare, education, and weaponry by

establishing the domestic defense industry.

3) Social-Cultural Aspects

The demographic bonus is one of the first steps to change this country from a developing country to a developed country. This opportunity must certainly be utilized to the optimum to build readiness towards the era of golden Indonesia of 2045. It is with the role of the government as a facility provider, the community as the main implementers of the available systems and facilities, and, of course, the two main actors must work together.

There are several sectors determining whether the country is ready to face the era like this or not. It will not be far from the economy, the quality, and amount of human resources, industrial productivity, governance, defense, education structure, and so on.

4) Technology Aspects

Nowadays, the process of globalization has an impact on interdependence between countries in various fields, including in the field of the defense industry. Developed countries can provide technology transfer mechanisms to developing countries on a technical level, which is to improve production efficiency, as well as on a political level, which is to strengthen the relations with these countries. Technology transfer can also be carried out between developing countries at the aim to complement

each other's shortcomings of the technology being developed. For Indonesia, this technology transfer mechanism can be its own opportunity, especially in the context of building a defense system amid the rapid development of current defense technology.

b. Threat.

1) Political Aspects

Political uncertainty and fluctuating oil prices have weighed heavily on global economic growth. These new dynamics and concerns have given rise to a new set of policy challenges, not only on how to simultaneously maintain stability and revive growth, but also on how to strengthen the foundations of the global political system.

The embargo of Indonesian arms by the United States was officially carried out in 1999. The embargo itself is a prohibition on trade by one or a group of countries against other countries to limit and to put the country's government in a difficult internal situation (Rachmawatie, 2014). The terminology regarding the embargo of arms cited by the UN Security Council (UNSC) No.1390 (2002) shows that an embargo of arms is a form of prohibition on the supply of not only the arms, but also arms' parts and anything related to military activities to parties (countries) that usually receive the supply.

2) Economic Aspects

The slowest growth in the world economy since at least 1992 has reflected the increasing pressure on the strength of the world's second-largest economy. This is caused by the protracted trade war between China

and US and by the decline in demand for goods from China from around the world. Economic conditions both in the country and oversea are still bad; global economic growth is slowing; instability and external uncertainties are also increasing. A country's defense budget is indeed very influential on the armed forces. The armed forces of a country must always be strong because in addition to being the frontline in a country's defense system, the strength of the armed forces can also be a vibrating force on the diplomacy table.

3) Social-Cultural Aspect

The increase of growth rate, from year to year, is also followed by an increase in life expectancy. It has an impact on the increase of working age. The low level of education results in the difficulty of people accepting new things. It can be seen from the inability of the community to properly take care of the results of development, so that many public facilities have been damaged due to the inability of the community to treat them properly. This fact, if left unchecked, will hamper development.

4) Technology Aspects

Technological developments have had consequences for the military and defense of a country. It is inseparable from the adoption of various technologies and new discoveries in the military field aiming to strengthen the national defense system. This condition makes all countries trying to renew their defense systems to face threats related to the development of technology itself. For Indonesia, it is both a challenge and an opportunity for the current defense system.

Table 7. Result of Scoring and Weighting for Internal Factor (Opportunity & Threat).

No	Factors of External Strategy	Score	Rating	Value
O	Opportunity			
1	Countries with Active-Free Politics	0,083	3	0,250
2	Government Policy Regarding the Defense Independence	0,134	4	0,536
3	Policy on the Prohibition of Export of Raw Natural Resources	0,116	3	0,348
4	The Increase of defense budget	0,152	4	0,609
5	Export some main equipment and weapon systems to the Regional area	0,109	3	0,326
6	Adequate natural resources	0,080	4	0,319
7	Investment in the Defense Industry is increasing	0,134	4	0,536
8	Abundant Human Resources for workforce	0,091	3	0,272
9	The level of education is quite high	0,043	3	0,130
10	The ability of the defense industry continues to be driven	0,029	3	0,087
11	The development of national technology is quite dynamic	0,029	3	0,087
Total		1,000		3,500
T	Threat			
1	The uncertainty of world politics	0,108	3	0,323
2	National democracy dividing the unity of the generation of nation	0,024	3	0,073
3	The threat of an embargo of main equipment and weaponsystems	0,070	3	0,210
4	The uncertainty of the world economy	0,024	4	0,097
5	A trade war between the US and China	0,024	4	0,097
6	Soaring world oil prices	0,094	3	0,282
7	World currency instability	0,040	3	0,121
8	Threats from the left-right political spectrum	0,024	3	0,073
9	Unequal education and economic disparity	0,024	3	0,073
10	The threat of taking over technology experts	0,094	3	0,282
11	A technological war between superpowers	0,040	3	0,121
12	The threat of cyber-attacks	0,081	3	0,242
13	Experts are limited	0,081	3	0,242
Total		1,000		2,234

3.4. Analysis of SWOT Matrix

The defense industry cannot be separated from the development of the national defense system, in any country. Thus, the existence of the defense industry is one of the important components for establishing a country's defense system. However, currently, the procurement of main equipment and weapon system in meeting

MEF is still largely dependent on foreign-manufactures imports. This condition is due to the suboptimal role of the domestic defense industry.

In an effort to advance the defense industry, Indonesia faces very complex challenges in the form of intense competition between countries in seizing market share as well as capability and

competitiveness. Facing these challenges, it requires a strategic step in supporting the domestic defense equipment policy. Independence of the main equipment and weapon system can be achieved by implementing the defense offset policy system that has been regulated in the Regulations. The next step, it is needed a strategy and efforts taken so that the goal of independence of the main equipment and weapon system can be achieved.

Basically, establishing the defense industry through the implementation of defense offset is not new for Indonesia. In general, Indonesia already has several main defense industries. Indonesian defense industry players include State-Owned Enterprises (BUMN) and private companies. The business that they do is producing military equipment, producing components, supplying raw materials, and offering repair and maintenance services.

In implementing the defense offset, a strategic step is needed. The strategic steps in the KKA research were formed by identifying external and internal aspects. External aspects

are opportunity and threat influenced by developments in the global, regional, and national strategic environment. Internal aspects are in the form of strength and weakness influenced by current conditions in the implementation of defense.

Based on the results of the analysis of IFAS and EFAS Matrix, a strategy development model was obtained consisting of SO strategy, ST strategy, WO strategy, WT strategy. From the study of the strategy, among others:

Table 8. Analysis of quadrant in SWOT Strategy (IFAS & EFAS).

S	W	Quadrant	Axis
3,955	3,095	0,861	X
O	T	Quadrant	
3,500	2,234	1,266	Y

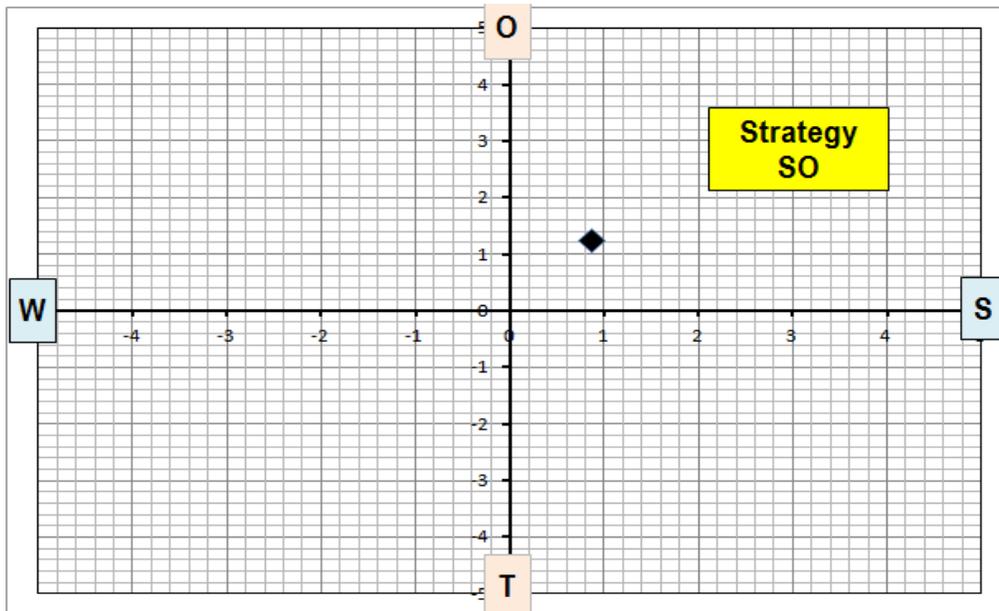


Fig. 2. Diagram Analysis of SWOT Strategy for Defense Offset Policy.

Based on four alternative strategies (SO, ST, WO, WT), one strategy needs to be identified in accordance with the strategy of developing defense offset policies in Indonesia. The results of the analysis of QSPM matrix and the SWOT diagram, the appropriate strategy is a SO strategy that is using strength to make the most of opportunities in implementing defense offset in Indonesia. SO steps, among others:

a. Aspects of Government Policy

- 1) Formulating a defense offset guideline policy and a roadmap for implementation in stages until the full independence of the main equipment and weapon system is fully met.
- 2) Carrying out monitoring of the release of offset obligations, including auditing and reviewing progress reports received from the relevant defense industry and MSMEs supporting the defense industry component.
- 3) The Ministry of Defense conducts regular interactions with all stakeholders, including industry, to encourage a partnership model for defense growth.
- 4) Encouraging the government to produce special policies related to aerospace, maritime, and territorial defense of the country to attract investment and apply new banking rules helping companies that are members of holding defense offset.
- 5) Facilitating faster absorption of technology and creating a multilevel defense industry ecosystem.
- 6) Establishing a synergy of cooperation between the national defense industry and the financial industry. This condition will help the establishment of Act No. 16, 2012 concerning the Defense Industry, particularly, regarding the procurement of strategic Defense and Security Equipment Tools

under the supervision and approval of the Ministry of Defense.

b. Aspects of Human Resource Development

- 1) Utilizing demographic bonuses of abundant workforce as the development of human resource and the regeneration in the implementation of defense offset.
- 2) Increasing the ability of human resources to become experienced experts by sending them to friendly countries.
- 3) Bringing in experts from abroad to become teachers.
- 4) Calling back national experts working overseas by giving an increased payment.

c. Aspects of Defense Industry Infrastructure.

- 1) Strengthening the defense industry infrastructure, including QA/QC/testing laboratories, both in the public and private sectors.
- 2) Producing several technology platforms under licensed production. Defense offset in which there is technology transfer has become the main reason and determinant of technology growth and development. Developing the latest technology to be able to achieve progress in manufacturing of defense products.
- 3) Applying offset banking guidelines and implementing new banking rules that ease companies that are members of holding defense offset.
- 4) Increasing production capacity by means of intensification and extensification to meet the needs of national defense equipment.
- 5) Gradually increasing R&D and development.

- 6) Encouraging collaboration to obtain the latest technology, manufacturing processes, expertise and R&D. It is as well as foster a competitive, innovative, and strong defense industry.
- 7) Mapping R&D capability to identify defense-related technologies. This mapping will include key industrial laboratories, other public sector laboratories, academic institutions and industry.
- 8) Implementing defense manufacturing investments to encourage the development of internationally competitive defense, aerospace, and domestic security related companies.

4. CONCLUSION

Based on the results of the analysis in the study, the concept of the implementation strategy of defense offset policy in Indonesia can be implemented with several influential factors. The analysis results of internal factors obtained 7 aspects of strength and 13 aspects of weakness. The analysis results of external factors obtained 11 aspects of opportunity and 13 aspects of threat.

The analysis results of the QSPM matrix found that the strategy that is in accordance with the policy of implementing defense offset is the SO strategy. SO Strategy consists of 18 sub-strategy steps, which are aspects of government policy 6 sub-strategies; aspects of developing human resources 4 sub-strategies; aspects of the defense industry infrastructure 8 sub-strategies.

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