

Indonesian Defense Industry Policy in Changes

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ABSTRACT

Indonesia is the country with the strongest military strength in Southeast Asia. A country's military strength is determined by six things, namely military institutions, military policies, military resources, military weapons, national defense industry, and military title capabilities. This paper focuses on defense industry policy. This research uses multi-method research by prioritizing a qualitative approach. The results show that the liberation of business in the defense industry sector is in accordance with business regulation as a strategic industry. Then, the industry is controlled by the state whose control does not mean ownership of the Indonesian defense industry. However, this industry still has weaknesses including the vision of the Indonesian defense industry which is limited to supplying the domestic market, not easy to get capital, insufficient support to enter international markets, constraints in the mastery of technology, and limited human resources.

Keywords: Defense Industry, Defense System, Policy, Policy Changes, Qualitative Method

1. INTRODUCTION

Indonesia's military strength is ranked 13th out of 145 countries worldwide. This military strength determines the efficacy of military defense (Global Fire Power, 2023). Suryohadiprojo (2010) found that a country's military defense strength is determined by its ability to maintain and create a deterrent effect on the military strength of another country with the potential to become a military threat. The capability of military force is recognized as the military posture of a country with the alert combat power of that country, necessary for both war and peace, as in the adage "si vis pacem, parabellum" (Suryohadiprojo, 2010). Suryohadiprojo stated that Einstein said that attempts to negate war have failed because all human beings harbor within themselves a fondness for hatred and destruction; what should concern us is that the progress of mankind has provided various means to subdue or impose his will on other nations.

The improvement of Indonesia's military power ranking is supported by six components: (1) military institutions; (2) military policy; (3) military weapons; (4) military resources; (5) military degree capability; and (6) the national defense industry. In supporting military readiness, the national defense industry is one of the important factors in developing national defense strength and capabilities (Putro, 2022). Law Number 16 of 2012 states that the defense industry includes: (1) main industry tools; (2) the main and supporting component industries; (3) components and Industrial Support

(Supplies); and (4) the raw material industry. Nevertheless, Indonesia still needs a globally oriented national defense vision. The Indonesian defense industry still needs to become equal with various countries worldwide.

The efforts to develop the Indonesian defense industry with a worldwide vision need to follow the example of other countries that are relevant to Indonesia's condition as a benchmark for the national defense industry. In contrast to the condition of the Indonesian defense industry, various changes in defense industry policy have been made, namely the rules for forming consortia and defense industry evaluators (Irwanto et al., 2022). The Indonesian defense industry prioritizes the procurement of defense equipment from abroad, resulting in an imbalance with the procurement of domestic defense equipment. It shows that Indonesia requires more efforts to improve domestic defense equipment by increasing the role of Indonesia's defense industry.

Therefore, the policy of the defense industry, which is a regulation or legislation to regulate the defense industry, needs to be developed in Indonesia. Defense industry policy is designed to create independence and competitiveness in the defense industry so that in its implementation, it requires support from the government as customers, sponsors, and regulators (Heidenkamp et al., 2013). The government seeks independence for the defense industry due to the need for defense resources to protect the country from threats (Kusumah et al., 2022).

The defense industry, also called the military industry, consists of government and commercial industries involved in the research, development, production, and service of military equipment and facilities (Hartati et al., 2014). In addition, the defense industry is also an instrument of national sovereignty and foreign policy (Sezal & Giunelli, 2022). According to the tri-defense industry, the defense industry needs criteria, including being professional, innovative, effective, integrated, and efficient, to reach the world defense industry community (Tyas et al., 2022). The hierarchy of the world's defense industry is based on the ability to master technology and support budget access to the defense industry (Reppy, 2000; Achmadi et al., 2019). Several studies about the defense industry have been conducted, including (Hartley, 1995; ÖZDEMİR & ÖZKAN, 2021). However, research on defense industry policy, especially in Indonesia, has not been conducted significantly.

Based on this issue, the research focuses on the defense industry as the fourth pillar of a country's military strength. This focus is prioritized because a nation's independence of military weapons relatively gives real strength and trepidation to its military strength. Meanwhile, generally, the contribution of the national military industry to the procurement's weapons system equipment is said to have only reached 30% of all needs that must be supplied. In this condition, it has yet to become the main supplier's defense equipment because it is limited to the production or supply of components. It is declared as parts that can be produced in Indonesia by the supplying country.

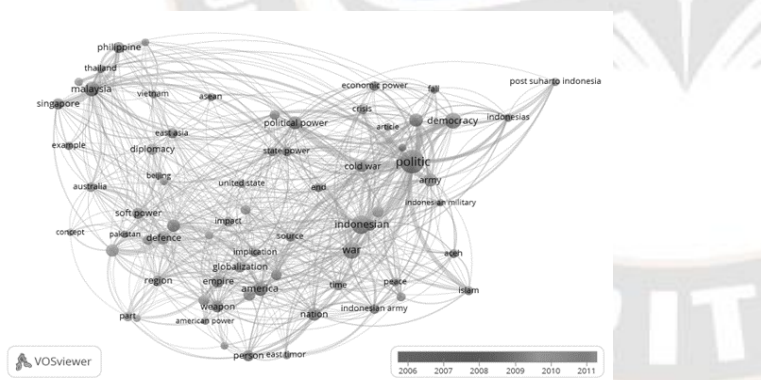


Figure 1. Visualization of Scientific Publication on Defense Industry

2. MATERIALS AND METHODS

These research studies employ policy research as a multimethod approach (Nugroho, 2014). The primary emphasis is on a qualitative approach, utilizing observational research techniques, secondary data analysis, and qualitative content analysis with the frame method (framing), which involves extracting meaning from narratives, legal methods involving the interpretation of legislation articles, and

interviews with selected respondents. According to Creswell (2008), a qualitative approach is an exploration and understanding method that involves interviewing others to obtain textual descriptions.

The research process involves (1) determining the object of the study, with the aim of focusing the research on a specific problem (Sugiyono, 2014). The selected research object is the defense industry policy. (2) In this study, observations are made on issues and developments related to the defense industry within the Ministry of Defense, KKIP, and the defense industry. Observation of issues and developments in the defense industry is carried out by gathering information through mass media, scientific writings, and other sources. (3) The next step involves conducting mass media research that publishes on defense industry policy. (4) Academic research is carried out by examining journals on defense industry policy. (5) Documentation research on defense industry policy is conducted. (6) A qualitative content analysis of defense industry policy is performed. (7) Furthermore, this study conducts a legal analysis by understanding the narrative of laws and regulations on defense industry policy. (8) Interviews are conducted with selected respondents relevant to the defense industry, namely the Ministry of Defense, KKIP (Komite Kebijakan Industri Pertahanan or Defense Industry Policy Committee), and the defense industry. (9) Finally, conclusions and insights are drawn. The research flow chart is shown in Figure 2.

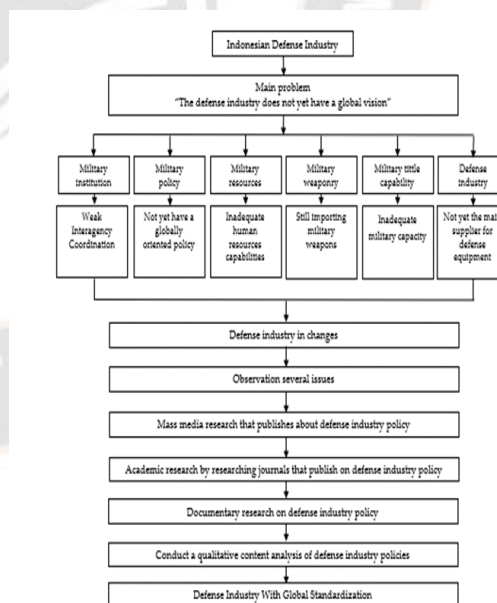


Figure 2. Research workflow

3. RESULTS AND DISCUSSION

3.1 Defense Industry Policy Changes

Law Number 16/2012 concerning the Defense Industry, Article 1 (1) states that the Defense Industry is a national

industry consisting of state-owned and privately owned enterprises either alone or in groups. Determined by the government to partially or completely produce defense and security equipment and maintenance services to meet strategic interests in defense and security located in the territory of the Unitary State of the Republic of Indonesia. The understanding of this article is that the national defense industry can be both making state-owned enterprises (SOEs)/BUMN) and private-owned enterprises (BUMS). However, because it is not restricted whether the private must be national private or foreign private, the norm that can be held is free, meaning that it can be both national private and foreign private.

In article 2, it is stated that the implementation of the defense industry is carried out based on the principles of (a) priority; (b) alignment; (c) sustainability; (d) effective and efficient equitable; (e) accountability; (f) visionary; (g) prima; (h) professional; (i) quality; (j) concealment; (k) on time; (l) on point; (m) appropriate; (n) empowerment of national human resources; and (o) independence.

Found the phrase "secrecy," which means the state is interested in maintaining the defense industry's confidentiality. The meaning of "principle of confidentiality" is the implementation of the Defense Industry related to the formulation of product design in the process or research and development activities of technology. Defense and Security Equipment must not be known by parties outside the Defense Industry and agencies related to the Defense Industry. It means that every party in the defense industry, both state-owned and private, are excluded from this provision.

Confidentiality matters are regulated in article 30, which states that (1) Research and development and engineering, as referred to in Article 28 paragraph 1, which relates to the formulation of the design and construction of Defense and Security Equipment technology, is confidential. (2) The nature of confidentiality, as referred to in paragraph 1, is following the provisions of the laws and regulations. Thus, it is considered confidential and needs to be kept secret by the state in formulating defense and security equipment technology design. The establishment of confidentiality becomes the mandate of the KKIP.

Furthermore, article 66 stipulates that everyone is prohibited from divulging confidential information regarding the formulation of defense and security equipment technology design that is strategic for defense and security. "Everyone" with a small "o" means people, not an organization or institution. Thus, in the event of a violation, the sanctions are directed to a person from an organization or institution.

Article 10 stipulates three defense industry clusters, namely a. the main tool industry or "tier one"; b. main and supporting component industries or "tier two"; c. component or supporting industries (supplies) or "tier 3"; and d. raw material industry or "tier four". Thus there is a level of the

defense industry, from the most important or decisive to just the industry that prepares the basis or raw materials.

In the explanation section, it is stated that what is meant by "main tool" is a product in the form of the main tool of the weapon system (defense equipment) for the state defense and security system. In Government Regulation Number 141/2015 concerning the Management of the Defense Industry, Article 6 (2) it is stipulated that the main equipment industry has the following functions: produce the main tools of the weapon system or integrate all the main components, components, and raw materials into the main tools; improving production capabilities, mastery of technology, and human resource capabilities; establishing cooperation with the main and supporting component industries, component or supporting industries (supplies), and the raw material industry; improve product development capabilities and the quality of key weapon system tools or key tools; and carry out research and development, licensing, and technology transfer.

Article 11 stipulates that the main equipment industry, as referred to, is a state-owned enterprise designated by the government as the lead integrator that produces the main tool of the weapon system or integrates all the main components, components, and raw materials into the main tool. Thus, tier one can only be organized by SOEs. In PP 141/2015, it is stipulated that the main tool of the weapon system is a product of the design of the weapon system or integrated with the main tool vehicle of the weapon system. Its organizer is a state-owned enterprise designated by the government as the lead integrator. It produces the weapon system's main tool or integrates all the main components, components, and raw materials to become the main tool. Thus, the understanding is that due to confidentiality, the state only permits the production of defense equipment in the country to SOEs.

From the analysis of the policies of Law 16/2012 on the defense industry and PP 141/2015 on Defense Industry Management, it can be concluded that the main points of Indonesia's national defense industry policy. First, the defense industry is strategic because it is considered important for the country, so it is devoted to its implementation. Secondly, this specificity applies to the tier-one defense industry, namely the main defense equipment industry, which includes: the sole manufacturer of combat/assault equipment for land, sea, and air dimensions, as well as the police and organizations in the country that require such equipment.

This specificity is realized by making SOEs in the defense industry sector be its organizers or become a negative list of investments for national private and foreign private companies. Third, the specificity is attributed to the confidentiality nature of the main tool. It is understood that its secrecy becomes a weak point in use when it has become known to the opponent/enemy. Fourth, the coordinating

regulator for the defense industry and the existence of the Ministry of Defense as the sole regulator for the defense industry are supported by KKIP (the Minister of Defense, Minister of BUMN, Deputy Minister of Defense, Minister of Industry, Minister of Research and Technology, Commander of the TNI, and Head of the Indonesian National Police). TNI, and the Head of the Indonesian National Police.

In Law Number 11/2020 concerning Job Creation, Paragraph 16 of Defense and Security Article 73 it is stated that to provide convenience for the public, especially Business Actors, in obtaining Business Licenses from the Defense and Security sector, this Law amends, deletes, or establishes new arrangements for several provisions regulated in Law No. 16/2012 (and Law No. 2/2002 concerning the police) in which the provisions of Article 11 of Law 16 of 2012 are changed to "The main equipment industry is (a) state-owned enterprises; and (b) privately owned enterprises. The government designates it as a lead integrator who produces weapon systems' main tools or integrates all major components, components, and raw materials into the main tools. With this article, all tiers in the defense industry are opened to private investment, including the foreign or international private sector. In particular, the state no longer monopolizes the defense industry through its SOEs.

In Law 11/2020 paragraph 7 concerning Industry Article 44, for the convenience of business licenses in connection with Law Number 3 of 2014 concerning the industry, the amendment to article 84 it is stipulated about strategic industries, that the state controls Strategic Industries. Strategic Industries consist of Industries that (a) meet the needs that are essential to the welfare of the people or control the lives of the multitude; (b) increase or generate added value to strategic natural resources; and (c) has ties to the interests of the defense and security of the state.

Thus, the defense industry was established as part of the strategic industry and was controlled by the state. Nevertheless, possession by the state does not mean ownership since it is established that the control of Strategic Industries by the state is Done through (a) ownership arrangement; (b) the establishment of policies; (c) Business Licensing arrangements; (d) production, distribution, and price arrangements; and (e) oversight.

Strategic Industry ownership arrangements are made through (a) capital participation entirely by the Central Government; (b) the establishment of joint ventures between the Central Government and the private sector; or (c) restrictions on ownership by foreign investors following the provisions of laws and regulations. The establishment of Strategic Industry policies shall at least include (a) the establishment of the type of Strategic Industry; (b) the provision of facilities; and (c) compensation for losses. The Central Government grants Business Licenses related to Strategic Industries. The arrangement of production, distribution, and set prices is

carried out at least by establishing the amount of production, distribution, and price of products. Supervision includes the establishment of Strategic Industries as national vital objects and supervision of distribution.

From the regulation, it is understood that the exemption of business in the defense industry is under business regulation as a strategic industry. It is designated as a state-controlled industry, where control does not mean ownership but is limited to ownership arrangements, policies, business licenses, production-distribution-price, and supervision.

The policy referred to is conveyed in article 38 of the amendment to Law 16/2012, which stipulates that the production activities of the Defense Industry are by production planning. It must prioritize the use of raw materials, raw materials, and domestic components; the production activities can be developed with two functions; it must first comply with the Business License of the Central Government.

From the analysis of the legislation of Law No. 11/2020 on Job Creation, it was concluded that changes in defense industry policy. First, the defense industry remains an industry of a strategic nature because it is considered important for the country, so it is devoted to its implementation. Second, the specificity previously applied to the defense industry is the main defense equipment industry, which includes the sole producer of combat/assault equipment for land, sea, and air dimensions and domestic and police organizations that need this equipment. Some lead integrators produce the main equipment for defense or integrate all the main components and raw materials into the main tools. As for the BUMN in the defense industry sector as the organizer, it was revoked so that BUMN, national private companies, and foreign private companies could produce defense equipment. Third, the specificity associated with the main tool's confidentiality nature takes little. However, it is stated that there is strict supervision from the government. It is difficult to do both because of organizational, human, and supervision methods limitations on the one hand. On the other hand, there is always the potential for efforts to master secrets to be accommodated to other parties.

Fourth, other matters related to specificity, supported by the existence of KKIP, consisting of the Minister of Defense, Minister of SOEs, Deputy Minister of Defense, Minister of Industry, Minister of Research and Technology, Commander of the TNI, and Chief of the National Police of the Republic of Indonesia as the coordinating regulator of the defense industry, and the existence of the Ministry of Defense as the sole regulator for the defense industry, has not changed. However, the presence of the private sector, including foreign private companies, in every line of the industry will effectively change the strength of KKIP and the Ministry of Defense in managing the national defense industry.

3.2 Determinants of the Defense Industry

Policy changes need to be made if there are sectors that must be addressed immediately. The Indonesian defense industry is known to have several problems, especially in being an independent industry in terms of business and technology. The sources in the defense industry stated the main weakness of the Indonesian defense industry. In this case, SOEs are the vision of the Indonesian defense industry. In this case, BUMN (*Badan Usaha Milik Negara* or State-Owned Enterprises) is the vision of the Indonesian defense industry, which is only limited to supplying the domestic market. As for the government, the volume of demand does not meet economies of scale, not easy to get capital, there needs to be more support to enter international markets, limited mastery of technology, and limited human resources. Thus stated:

"The policy vision of the defense industry is only to supply domestic needs so that the market becomes limited and does not enter into a business scale. If our vision were to become a global manufacturer, the management's vision would differ. Without economies of scale, businesses cannot run as they should. Meanwhile, with the condition of a company like this, it is not easy to get capital from the bank. The important obstacle is that even if we want to enter the international market, export credit support from national banks must be supported by export support agencies. It is currently in the Indonesian Export Development Institute (LPEI), a public service agency (BLU) under the Ministry of Finance. Perhaps, because the risk is high, export support is still constrained".

This statement aligns with the Ministry of Defense of the Republic of Indonesia, which states that the main problems of Indonesia's defense industry are economies of scale, business independence, mastery of technology, and human resources. Thus stated:

"There are at least three challenges for Indonesia's defense industry, including: first, the limited market, namely the Indonesian government, so it is recognized that economies of scale are constrained. A particular product must be manufactured because it is under its economies of scale. Second, business independence, both due to capital and other related factors. Third, limited mastery of technology due to constraints on research costs with limited economies of scale and capital constraints. Fourth, it is recognized that the human resources that manage our defense industry are relatively limited compared to other industries. The previous three causes are the main causes."

A source at KKIP stated three challenges for the defense industry: project mindset, capital, and mastery of technology. Put forward:

"It is recognized that our defense industry only has a project mindset, not a business mindset, which prioritizes profit, investment, independence, and sustainability. In addition, it

takes work to access capital from national banks for the defense industry. The third obstacle is the inability to master and develop the technology needed to develop the ideal defense industry."

The results of interviews about the challenges in the defense industry in Indonesia can be simplified as in Figure 3.

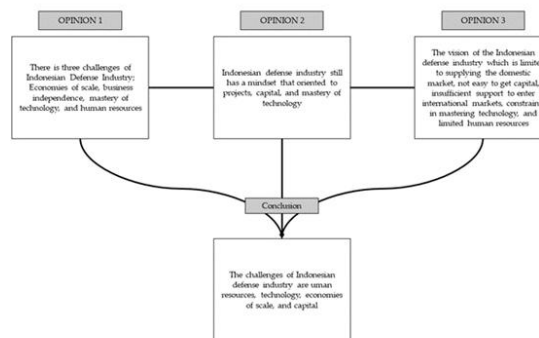


Figure 3. Interview result

Figure 3 explains that opinions from selected sources obtained based on interviews regarding challenges or problems in developing the defense industry in Indonesia can be simplified into four challenges or problems, namely human resources, technology, economies of scale, and capital. Inadequate human resources supported by a lack of mastery of technology and constrained by economies of scale and capital affect the fulfillment of the independence of the defense industry.

This research is in line with Muradi (2018), who states that the management of strategic industries and defense industries in various countries often faces three main problems, including (1) the development of defense technology that only relies on strengthening defense industry research and development schemes, as well as through offset schemes and technology transfer; (2) financing constraints of the defense industry with various financing models; (3) there is the issue of improving the quality of human resources (HR) in the defense industry. The three of them are interrelated in supporting the needs of the main equipment of weapon systems (Alutsista) in their country or moving to become exporters of weapons and war equipment.

According to Yani et al. (2017), focusing on military strength development in Indonesia still leads to preparing a positive asymmetric war spectrum. It pays little attention to the negative asymmetric war spectrum. The positive asymmetric spectrum is when a country faces an enemy with lower military strength. In comparison, the negative asymmetric spectrum is when a country faces an enemy with higher military strength. The positive spectrum of asymmetric warfare uses conventional weaponry. Meanwhile, the negative asymmetric spectrum of warfare uses unconventional weaponry. The focus of its development can be seen from the complex and less useful mobile and

immovable defense equipment procurement programs in the face of strong country military forces.

The preparation of a roadmap regarding the development of defense forces is one of the national research agendas, so it must be carried out by the military (Mirdanies, 2013). Meanwhile, the defense industry is directed to master strategic core competencies to support the supply of weapons to the military, both as manufacturers of finished products, components, or sub-system manufacturers, as well as providers of facilities maintenance. The government also needs to examine the ideal national defense industry development model for Indonesia's conditions by implementing an integrated system in the defense industry. Integrating systems is applied by considering building, equipment, and human factors (Ionescu et al., 2018; Laal et al., 2019). According to Pourrajab et al. (2019), implementing an Integrated Management System (IMAS) in the defense industry is highly recommended.

In line with the results of the interview, the Ministry of Finance of the Republic of Indonesia found the condition of Indonesia's defense industry SOEs that have currently been consolidated in LEN Holding as follows:

1. The Indonesian defense industry still needs to be constrained by its ability to meet domestic needs.
2. There are still many imports of supporting raw materials, so if there are import restrictions, it will impact meeting domestic needs.
3. Based on records, the total revenue in 2020 reached IDR 12 trillion (defense and nondefense), and IDR 5.8 trillion of the revenue came from the defense sector, or 16% of the absorption of the 2020 defense and security budget. However, this 2020 performance has yet to bring the defense holding into the Top 100 Global Defense Companies list in 2021.

Furthermore, a study by the National Defense Institute of the Republic of Indonesia found that there are four causes of the weak Indonesian defense industry, namely:

1. Stagnation of defense budget allocations that are always only 0.8% of GDP
2. The dominance of BUMN in Indonesia's defense industry ecosystem has yet to show the existence of helixes and supply chains in Indonesia's dusty defense.
3. The small allocation for research and development in the defense industry makes it impossible to adopt or even jump into technology.
4. Indonesia mainly desires to develop economies of scale in some defense equipment.

According to the six determinants that affect Indonesia's military strength, various obstacles still need to be addressed with Indonesia's defense industry policy. The problems in each determinant are as follows:

- 1) Military institution

Includes the governance structure of military institutions and their supporting organizations, including military institutions, operational military organizations, intelligence organizations, and military support organizations. The defense industry is inseparable from the contributions of some state institutions. However, state institutions can become a threat to the defense industry through their respective approaches that impact the direction of contradictory defense industry policies. Weak interagency is often the dominant problem in handling threats in Indonesia. Anxiety occurs between state institutions in dealing with multi-spectrum and cross-sectoral threats due to weak assessment of these threats. This weak assessment impacts improper use of resources (means) and wrong strategies (ways). It leads to better-coordinated threat handling.

Therefore, formal efforts from the government are needed to coordinate various state agencies in the defense and security sectors so as not to deal with threats partially, and interagency coordination has good coordination. The presence of the National Security Council is important to be a forum for the final assessment of emerging threats, both military and non-military and hybrid. The council is also expected to have the authority to direct state agencies in synergizing with each other and empowering their resources in dealing with threats.

2) Military Policy

Laws and regulations govern a country's military, derivatives, and policies that are not for-mal-legal (Nugroho, 2018). The defense industry in Indonesia has been developing since the beginning of independence, cultivated by the private sector and State-Owned Enterprises (BUMN). The government pays attention to the domestic defense industry by issuing policies that are, in principle, to accelerate the development of the national defense industry. Contained in Presidential Decree (Keppres) Number 40 of 1980 concerning the Hankam Industrial Development Team, Keppres Number 6 of 1984 concerning the Strategic Industry Board of Trustees, Keppres Number 44 of 1989 concerning the Strategic Industry Development Agency, Keppres Number 56 of 1989 concerning the Strategic Industry Board of Trustees, Keppres Number 64 of 1998 concerning the SOE Management Agency and the Determination of PT BPIS to form a team, councils, and bodies.

The Indonesian defense industry experienced ups and downs, especially in the 1998 economic crisis that hit Indonesia. In improving the performance of the defense industry, the government issued a defense industry revitalization policy which began with establishing the Defense Industrial Policy Committee (KKIP) through Presidential Regulation Number 42 of 2010 and Law Number 16 of 2012 concerning the Defense Industry.

3) Military Weaponry

It consists of the main tools of defense systems (defense equipment) and non-main defense system tools (Prasetya,

2022). The provision of components and raw materials for defense equipment products still needs improvement. The defense equipment product-producing industry is still importing some components from abroad. After all, Indonesia's supporting component industry has yet to be able to meet all the needs of defense equipment production materials. Defense technology development depends on two schemes: the scheme of strengthening research and development of the defense industry and the offset and technology transfer scheme (Muradi, 2018).

The implementation of the trade return and offset mechanism is regulated in Government Regulation Number 76 of 2014 concerning the Trade Return Mechanism for Procurement of Defense and Security Equipment from Abroad. The government issued the regulation to regulate the implementation of defense and security equipment tools (Alpalhankam) procurement from abroad, trade returns, local content, and offsets can be carried out independently by the ministry or agency that conducts alpalhankam procurement. Novyanto and Faisal (2022) state that the 1997 crisis affected the production capabilities of the domestic defense industry. This crisis has led to Indonesia's increasing dependence on defense products from abroad and the increasing vulnerability of the country's defense during a military embargo. Many defense pieces of equipment cannot be operated due to a lack of spare parts. Much defense equipment was damaged due to a lack of maintenance, so in the early 2000s, Indonesia often experienced territorial conflicts with neighboring countries.

4) Military Resources

Active military human resources, administrative supporters of military organizations, and military human resource reserves (Muradi, 2018). The state defense system requires the important role of the people as human resources to support army duties in the country's defense efforts (Indrawan, 2015). In line with Marwick (1988), the universe war gave birth to the concept of a money defense system requiring the participation of all elements of society, starting from the smallest strata of society in a country (Marwick, 1988). However, the human resources of the defense industry still have to be improved.

The development of the army's strength must be adjusted to the size of the country's territory, which must be kept intact, and the population must be kept alive. The strategic information technology plan influences the defense industry's progress in utilizing human resources quantitatively and understanding environmental conditions. (Manunggal et al., 2022).

5) Military Degree Capability

Military mobilization capacity, especially for war tasks and other defense needs. Military defense agendas are preparing the universal defense, active defensive defense, and composing defense. Military defense are arranged in a balanced and proportional manner to the characteristics of

Indonesia's geography as a function of deterrence, enforcement, and recovery.

According to the Indonesian Defense Doctrine White Paper, the TNI force is the main and important part of military defense efforts based on deterrence and the implementation of military operations. The existence of the ~~the~~ military defense force of the TNI is expected to deter the enemy. As Buzzan said, the basic principle of deterrence is that "one actor prevents another from taking some action by raising the latter's fear of the consequences that will ensue".

The TNI strength is to develop flexibly for the realization of the Integrated Tri Matra and integration with non-military defense. The strength of TNI force is also organized based on the country's defense strategy and the implementation of military strategy. The objective of TNI strength in peacetime is aimed at realizing the defense deterrent that is projected into the Integrated Tri Matra.

6) National defense industry

The ecosystem of production and distribution of military products, both main and non-main tools. Indonesia cannot be considered a fully independent country because it still requires imports to procure or manufacture its defense equipment. The defense industry can affect the growth of the national economy and industry. It encourages the growth of national industry internationally, absorbs a large enough workforce, and transfers technology that can encourage the research and development sector while meeting national education needs in science and technology.

The Defense Industry criteria that have been set by KKIP are as follows: (1) the defense industry is part of the national industry and belongs to the strategic industry group; (2) the defense industry is sourced from the potential of national industries, both government-owned and private; (3) the defense industry is capable of producing weapons systems, equipment and logistical support as well as services for defense interests, in addition to being able to produce commercial products in order to support national economic growth; (4) The defense industry in its management is inseparable from the prevailing economic principles; (5) The defense industry must be able to convert / transform its production capacity and capability quickly in line with the demands of defense needs, especially in emergencies / war; (6) the defense industry is the main backdrop for the implementation of industrial mobility in a war emergency; (7) the defense industry or at least the administrative and logistics supporting industries shall be pursued to be spread throughout the national territory; (8) the defense industry is developed gradually according to the development of the posture of the Armed Forces (TNI/Polri) and the demands of development weapon system technology; (9) the defense industry must be able to play a role in reducing dependence from abroad in the field of meeting Alpalhankam; (10) the defense industry must be supported by RDT & E (Research

Development Test & Evaluation) capabilities that are resilient and consistent with the development of science and technology. The defense industry may consist of SOEs. These determinants have cause and effect in the national defense industry. The relationship between determinants can be seen in the causal diagram, which shows each determinant's positive or negative influence. A causal diagram of determinant influences in the defense industry can be seen in the figure 4.

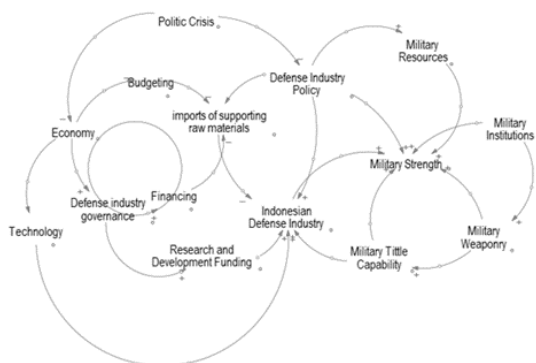


Figure 4. Causal Loop Diagram on Defense Industry

3.3 Benchmarking Defense Industries in Developed and Developing Countries

The enormous development of the defense industry among third-world countries (Countries that are not partial to NATO or the communist bloc) is the result of the efforts of the receiving countries to reduce dependence on industrialized countries in terms of military hardware and technology. It is also an effort to increase devising come to a dan balance sheet position. Third-world countries are changing the pattern of military acquisitions from pure imports to licensed production through offset arrangements (Baek et al., 1989). The development of the global defense industry is supported by suppliers offering defense equipment products to third-world countries. This condition encourages Indonesia to develop the defense industry until Indonesia becomes a country respected by countries that have developed industries and become the pride of third-world countries because of the progress of Indonesia's technology-based strategic industries. However, the economic crisis and the collapse of the New Order in 1997-1998 caused Indonesia's strategic industries to regress. This situation causes technology-based industries to stop. The deterrent effect in the form of military or defense strength is considered weak because it is not supported by independent technology development by domestic industries (Sampurno, 2021).

In the 21st century, the defense industry's globalization has increased and strengthened since the 1970-1980s. It is characterized by a trend of significant interstate cooperation intensity in building the defense industry. Developed countries prefer to cooperate with other countries in building

industries because they can significantly streamline costs. The progress of the defense industry in developed countries such as the United States, The United Kingdom, and France is supported by the presence of the role of the government as (1) consumers, governments of developed countries such as being loyal users of defense goods/services offered by the domestic defense industry; (2) sponsors, the government promotes the defense industry to other countries and provides support for defense industry research and development funds in terms of weapons design, construction, production, and trials; and (3) regulators, governments provide access to confidential information, product provisions and export destinations, and anti-corruption and antibribery regulations.

4. CONCLUSION

Based on the findings, it is concluded that the obstacles to the development of the defense industry in order of priority are as follows:

1. The policy vision that directs the defense industry to the domestic market, consequently constraints economies of scale
2. The constraint is because of the limitations of the state budget. So, stagnation in the defense budget allocation is always only 0.8% of GDP.
3. The constraints on economies of scale have prevented the industry from entering a reasonable business scale to be managed as a healthy, profitable, independent, and strong company. As a result, the defense industry is constrained to make allocations for research and development (research and development) in the defense industry, making it impossible to adopt even technological leaps
4. Constrained capital support from the banking system in the country
5. Constrained financing support for foreign exports
6. Constraints in human resources.
7. The dominance of SOEs in the Indonesian defense industry ecosystem has yet to show the existence of a helix and supply chain in the Indonesian defense industry and constraints of economic scale from buyer (government) demand. It has resulted in not creating a long and widespread business chain.

The government's policy response is to open business opportunities for the defense industry at all tiers to all business actors, including foreign business actors. Thus, it can be concluded that the changes in defense industry policy have responded to policy constraints on the mastery of technology, capital from the domestic banking system, human resources, and the dominance of SOEs in the defense industry ecosystem.

Changes in Indonesian defense industry policy involve the opening up of all investments for the defense industry to the national and foreign private sectors, or in economic terms, referred to as the liberalization of the economic system. The

lesson that needs to be learned from these findings is that the government considers that a set of obstacles to the progress of the Indonesian defense industry can be solved with one solution, namely the liberalization of the defense industry. Because of this, changes in defense industry policy in the future will face two possibilities: with liberalization, the Indonesian defense industry will become livelier and more advanced, or the second possibility is that foreigners will control the Indonesian defense industry. The second thing also has two possibilities: the possibility that the Indonesian military defense will fully benefit from these conditions, or the Indonesian military defense will benefit only partially from these conditions, and there are losses in other parts. Indonesia must also learn from other countries with good systems in the defense industry, especially in implementing defense industry policy. This study will become a trigger for studies or research in the field of the defense industry in the future.

In addition to studying developed countries, Indonesia needs to learn from India, which has succeeded in building an independent defense industry, even though India is still in the category of developing countries. The domestic defense industry has proven to be the backbone for constructing India's defense system and the modernization of defense equipment, which is currently growing into a major military power in Asia (Rachmat, 2017). Indeed, there are other benchmark countries, such as PR China and the Republic of Korea (South Korea). Reflecting on this, Indonesia, which is currently accelerating programs to meet the minimum needs of its military strength, issued a legal basis for developing the domestic defense industry through Law Number 16 of 2012 concerning the Defense Industry.

In summary, the research has discussed the development of the defense industry in developed and developing countries, with a focus on Indonesia. It argues that third-world countries have been trying to reduce their dependence on industrialized countries in terms of military hardware and technology by changing their pattern of military acquisitions from pure imports to licensed production through offset arrangements. However, the development of Indonesia's defense industry has been constrained by various factors, including policy vision, budgetary limitations, and constraints on economies of scale, human resources, and the dominance of state-owned enterprises. The government's response has been to open up the defense industry to all business actors, including foreign investors, with the hope that liberalization will lead to a more advanced and independent industry. In conclusion, by and large, Indonesia should learn from other countries, including China, India, and South Korea, which have succeeded in building an independent defense industry.

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