



## **Jurnal Pertahanan**

Media Informasi tentang Kajian dan Strategi Pertahanan yang Mengedepankan *Identity*, *Nationalism* dan *Integrity*

e-ISSN: 2549-9459

<http://jurnal.idu.ac.id/index.php/DefenseJournal>



### **THE DEVELOPMENT OF THE INDONESIAN DEFENSE INDUSTRY BY USING SYSTEMS THINKING APPROACH**

**Kasim**

Republic of Indonesia Defense University  
IPSC Sentul, Citereup, Bogor, West Java, Indonesia 16810  
[kasim@tp.idu.ac.id](mailto:kasim@tp.idu.ac.id)

**George Royke Deksino**

Republic of Indonesia Defense University  
IPSC Sentul, Citereup, Bogor, West Java, Indonesia 16810  
[georgeroydeksino@gmail.com](mailto:georgeroydeksino@gmail.com)

#### **Article Info**

##### **Article history:**

Received :  
August 29, 2022  
Revised :  
December 9, 2022  
Accepted :  
December 9, 2022

##### **Keywords:**

Defense Industry,  
Nationalism,  
Nation-State,  
System Thinking,  
Pseudo National  
Product

#### **Abstract**

The independence of the national defense industry is crucial in supporting the national defense system to ensure the survival and existence of the nation and state through its impact on defense capability, and national economic, and technological development. But until now there are still phenomena that show the weaknesses of the national defense industry, both in concept and practice. This study aims to explain and analyze the weaknesses of the national defense industry and propose recommendations for solutions to overcome these problems. This study uses a qualitative approach, a methodology that involves interpretation to understand and explain certain phenomena. The analytical tool used is systems thinking, which can see this phenomenon in a bigger, dynamic, and interrelated picture through a system model. The results of this study indicate that the problem we are facing includes a small defense industry's budget, lacking resources and technology, the need for raw materials, and pseudo-practices by the domestic defense industry. The proposed solution system model demonstrates how to develop the national defense industry by implementing the mandate of Law of the Republic of Indonesia Number 16 of 2012 Concerning the Defense Industry, introducing defense product innovation through national and international defense industry exhibitions to increase investment opportunities, and implementing Law of the Republic of Indonesia Number 11 of 2020 Concerning Job Creation to involve private industry in the development of a strategic defense industry. Finally, the independence of the national defense industry will realize operational readiness into real operational capabilities, so that the independence of national defense will be achieved and the integrity of the sovereignty of the Republic of Indonesia will be maintained. This condition will immediately build the spirit of nationalism of Indonesian citizens.

DOI:

<http://dx.doi.org/10.3172/jp.v8i3.1770>

© 2022 Published by Indonesia Defense University

## INTRODUCTION

The state defense system is a universal defense system, which involves all citizens, territories, and other national resources (Ministry of Defense of the Republic of Indonesia, 2021). The aim is to defend 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 threats and disturbances to the integrity of the nation and state (Ministry of Defense of the Republic of Indonesia, 2015). The national defense system also conforms to the national objectives and ideals set out in the preamble to the 1945 Constitution, to protect the entire Indonesian nation and the entire Indonesian homeland, to promote public well-being, to educate the life of the nation, and to participate in carrying out world order based on independence, eternal peace, and social justice.

National defense is a core element that is very important for the safety and security of the country. In the strategic environmental study, various multidimensional threats are coming from within and outside the Indonesian state that will threaten national security. This threat also involves horizontal factors triggered by the diversity of people's culture, religion, ethnicity, class, and social conditions. This condition is also a factor triggering the conflict between nationalism and national integration. The spirit of nationalism that loves the nation and the state will place all the differences and interests of ethnicity, religion, race, and group under the interests of the nation and state. Then the defense system and administration become very important for Nationalism, and vice versa. Nationalism is a very important factor in the development of state defense administration, both tangible and intangible nationalism.

Nationalism is a psychological process that loves its nation. In the past, nationalism grew because of colonialism, suffering, equality of fate, and the desire

for independence. This was marked by the national awakening movement and the proclamation of independence. But today, nationalism must develop by incorporating a sense of belonging and pride in identity as a Nation-State (the people, sovereign territory, and government) (Soetjipto & Yunazwardi, 2021). One form of nationalism is advancing a strong and independent national defense industry.

The national defense industry is important to support the national defense system to increase the deterrence effect and ensure the survival of the nation and state. A strong defense industry has two main benefits: first, it helps develop defense capabilities through production readiness and development of defense and security equipment tools, and second, it has a positive impact on national economic and technological development (Muradi, 2015). Defense industry companies are designated by the government as a vital sector for producing defense equipment. The development of the national defense industry is aimed at achieving self-sufficiency to meet the needs for domestic defense and security equipment tools. The fulfillment of this need is carried out by empowering and utilizing the national defense industry so that it can produce and maintain defense equipment following the operational needs and technical specifications of users and can keep abreast of technological developments.

Revitalizing the defense industry to realize defense industry independence by increasing the Domestic Content Level (*Tingkat Kandungan Dalam Negeri* or TKDN) in the upstream defense industry, fulfilling the Minimum Essential Force (MEF), and strengthening defense and security equipment tools. The independence of the national defense industry will guarantee the availability of defense equipment so that the independence of national defense and the integrity of the Unitary State of the Republic of Indonesia is maintained. The desire to feel safe and maintain the

integrity of the Unitary State of the Republic of Indonesia (NKRI) involves all national resources to realize national independence. There are two things that Indonesia can achieve when it becomes independent in the defense industry, namely the ability to produce/integrate defense equipment and the freedom to choose material/system/technology resources.

From the literature study and focus group discussions, there are at least four Weaknesses faced by the national defense industry. First, the stagnation of the defense budget allocation which is always only 0.8% of GDP (Gross Domestic Product). Second, the dominance of State-owned enterprises (BUMN or *Badan Usaha Milik Negara*) in the Indonesian defense industry ecosystem has not shown the existence of a helix and supply chain in the Indonesian defense industry. Third, the small allocation for research and development in the defense industry makes it impossible to adopt or even leap in technology. Fourth, there are no economies of scale in several defense and security equipment tools which is Indonesia's main desire to develop (Virtual FGD at the Indonesia Defense University on June 8, 2022). Therefore, this study wants to analyze the weaknesses of the national defense industry and propose recommendations for solutions to overcome these problems.

This series of research begins by describing the condition of the national defense industry which focuses on the problems faced by the national defense industry, these problems will be described and analyzed in a thinking system model, and then a solution system model will be developed as a proposal to overcome the current problems of the national defense industry's weaknesses.

## METHODS

This study uses a qualitative approach, a methodology that involves interpretations to comprehend and explain certain

phenomena (Creswell, 2007). According to Creswell (2003), in the qualitative approach, “the researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting”. The object of study in this research is the weaknesses phenomenon of the Indonesian defense industry. While the process of data collection was conducted through a literature study from the previous research, focus group discussion, and existing data statistics (Bryman, 2012). The existing data statistics were secondary data from previous research or official report from institutions related to the research.

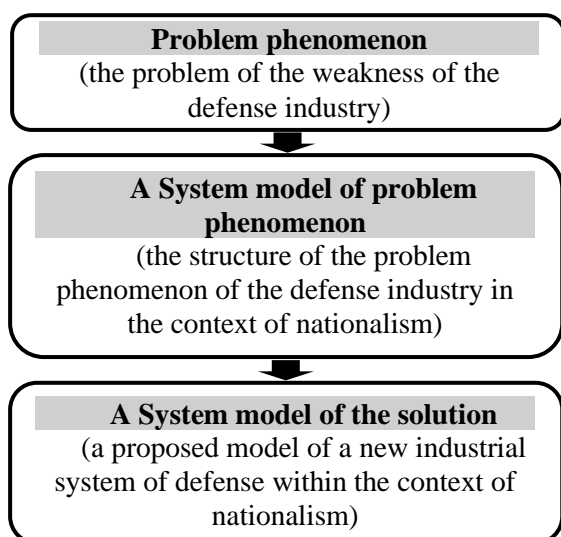
The method used is the systems thinking approach. The term systems thinking gained popular and generic status in the 1970s. Senge (1997) describes systems thinking as “a discipline for seeing wholes. It is a framework for seeing inter-relationships rather than things, for seeing patterns of change rather than static snapshots”. Systems thinking is a study that is used to be able to collect elements in the system into a single unit to jointly achieve predetermined goals. Anderson & Johnson (1997) states that systems thinking is a characteristic of a principle, including:

1. The ‘big picture’, which is looking at a problem with a narrow perspective will only result in pressure and obtaining fewer solutions. System thinking teaches that there is a widening perspective on the problems encountered by looking at the whole problem from the largest part of the system. A broader perspective will result in the effectiveness of the solution.
2. Long-term and short-term, where system thinking does not talk about short-term or long-term because, in system thinking, these two things become important to consider and implement. Systems thinking shows behavior to lead to short-term success because success will lead to long-term

success.

3. Dynamic, complex and interdependent, which is when you see a dynamic, complex, and interdependent world system that makes it complicated and interconnected. It makes the urge to solve future problems or uncertainties in a very easy way, looking for shortcuts or just wanting to solve one problem at a time.

In system thinking, there are reminders to simplify, structure, linearize the understanding of the thinking that has limitations, and can produce problems that can be used as solutions. The flow of the system thinking approach used in this study is shown in Figure 1.



**Figure 1.** System thinking flow in this study  
*Source:* Hartati, Muhammad, Bayu, & Tasrif, 2014

## RESULT AND DISCUSSION

### The Weaknesses of the National Defense Industry

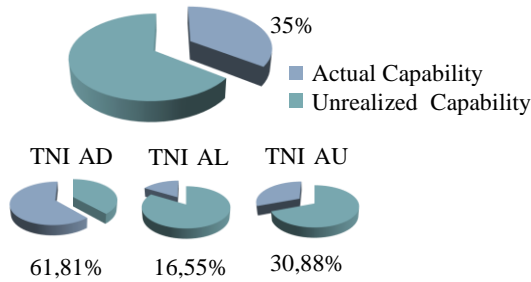
The National Defense Industry is a national industry consisting of state-owned enterprises (*Badan Usaha Milik Negara* or BUMN) and private-owned enterprises (*Badan Usaha Milik Swasta* or BUMS) either individually or in groups determined by the government to partially or wholly produce defense and security equipment, as well as maintenance services. Several problems in the national defense industry over the past two decades are the

vulnerabilities of the two major foundations of the defense industry: basic defense industry budgets and basic industrial resources (Gaub & Stanley-Lockman, 2017). This industrial and resource base includes economic industrial assets required for the production, repair, and maintenance of defense equipment requiring large costs, and human resource requirements for research and development needs. What is no less important is that the defense industries, especially the lead integrator, supporting industries, and the raw materials industry need human resources: capable and skilled scientists, engineers, and technicians.

Indonesia has experienced an embargo that caused a shortage of defense equipment. From 1995 to 2005, America and its ally, NATO (North Atlantic Treaty Organization), embargoed their defense equipment to be sold to Indonesia because Indonesia was considered to have violated human rights (HAM or *Hak Asasi Manusia*) in Dili, Timor Leste. During the tsunami disaster in Aceh, Indonesia could not optimally send aid to victims because of the lack of military transport aircraft that could be used to transport aid supplies. Before the embargo, there were 24 C-130 aircraft that could be operational, but at that time it was reduced to 6 aircraft (Aida, 2021). This is a lesson learned for advancing and realizing the independence of the national defense industry so that it does not depend on other countries (for example spare parts or the need for raw materials for defense products and technology).

To restore the capability of the National Defense Industry and reduce Indonesia's dependence on foreign-made defense and security equipment tools, the Government (United Indonesia Cabinet I under President Susilo Bambang Yudhoyono) produced Presidential Regulation No.42/2010 concerning the Defense Industry Policy Committee (*Komite Kebijakan Industri Pertahanan* or KKIP), which was followed by the passing of Law

of the Republic of Indonesia Number 16 of 2012 Concerning the Defense Industry. KKIP has also prepared the defense and security equipment tools Product Development Road Map which is divided into three phases namely Phase 1 Mastery of Design 2010-2014, Phase 2 Mastery of Technology 2015-2019, and Phase 3 New Development 2020-2024.



Note: Capability is the capacity to be used, treated, or developed for a specific purpose. So, eg within 100, and if the data/analysis/calculations show the actual capability is 35%, so it only can use 35.

**Figure 2.** TNI's Capability  
*Source:* Muhammad, 2022

Figure 2 shows the actual capability of the Indonesia National Armed Forces (*Tentara Nasional Indonesia* or TNI) in general at an average of 35% (a defense audit of the TNI Department of Defense 2009). This condition calls for an increase in the defense budget to increase the TNI's capabilities in these three dimensions. But after that, the budget management for the procurement of defense equipment is still weak, the indicators can be seen from the defense audit data of the Ministry of Defense of the TNI proceedings in 2020 (shown in Table 1).

TNI's readiness from 2009 to 2020 has only increased from 35% to 59% even though the budget has increased from IDR 33.67 trillion to IDR 131 trillion or an increase of 289.1%. So, the increase in budget defense has not been able to guarantee an increase in combat readiness. The state budget is mostly for program procurement, while the existing defense and security equipment tools have a low level of utility, citing limited operational

and maintenance costs. Qualitatively, this can impact wasting state money because there must be more budget for the operation and maintenance of existing defense equipment to achieve optimal utility value.

**Table 1.** TNI's budget readiness (2009-2020)

Budget/ Force	Readiness		Notes
	2009*	2020**	
Defense Budget	IDR 33.67 Trillion	IDR 131 Trillion	289.1% increase
Army	61.81%	66%	4.19% increase
Air Force	30.88%	65%	34.12% increase
Navy	16.55%	47%	30.45% increase
Average	35%	59%	a budget increase does not guarantee an increase in the readiness of the TNI

*Source:* Muhammad, 2022

\*Defense Audit TNI – Department of Defense, 2009

\*\*Ministry of Defense – TNI Defense Proceedings, 2020

From 2012 to 2020, based on data from the Indonesian Ministry of Trade shows that there is a trend toward an increase in imports of defense equipment needed weapons and ammunition, parts and accessories, tanks, and warships (Ministry of Defense of the Republic of Indonesia Directorate General of Defense Potential, 2021). The Stockholm International Peace Research Institute (SIPRI) shows Indonesia was among the top 17 imported defense systems, accounting for 1.8 percent of the global total. The main defense equipment suppliers are the United States (20%), the Netherlands (18%), and Korea (16%) of the total imports of defense equipment. Countries with advanced defense industries are also

supported and have large defense budgets, and ideally, 20 to 30 percent of the defense budget is allocated to the defense industry (Karim, 2014).

**Table 2.** Indonesian Military Strength Index

<b>Indonesia</b>	World Ranking	15	Military Personnel	400.000
	Power Indeks*	0,2251	Reserve personnel	400.000
	Total Budget	9.3 billion USD	Paramilitary	280.000
<b>Land Forces</b>	<b>Naval Forces</b>	<b>Air Power</b>		
Tanks: 314	Submarines: 4	Fighters: 41		
Armored Vehicles: 1444	Frigates: 7	Special attack aircraft: 38		
Self-Propelled Artillery: 153	Corvettes: 24	Carriers: 64		
Crane Artillery: 366	Mine Warfare: 11	Special mission Aircraft: 17		
Rocket Projectors: 63	Patrol Vessels: 181	Helicopters: 172		
		Attack Helicopters: 15		
		Practice Planes: 109		

Source: Global Fire Power, 2022

\* Each nation is assessed on individual and collective values processed through our in-house formula to generate its 'PwrIndx' score. Some values are estimated when an official number is not available. View notes: [https://www.globalfirepower.com/country-military-strength-detail.php?country\\_id=indonesia#viewNotes](https://www.globalfirepower.com/country-military-strength-detail.php?country_id=indonesia#viewNotes)

SIPRI is an independent institution that focuses on conflict issues to weapons collecting military spending data from several countries and managing data based on open sources. Based on the SIPRI database, Indonesia's defense spending is

USD 7.7 billion or 0.67 percent of GDP in 2019. Unfortunately, Indonesia's defense budget support is still relatively small. Because when compared to neighboring countries, Brunei Darussalam's military spending based on this data is 3.3% of GDP in 2019, Cambodia 2.3%, Malaysia 1%, Philippines 1%, Singapore 3.2%, and Thailand 1.3% (Stockholm International Peace Research Institute, n.d.).

For 2022, Indonesia is ranked 15 of 142 out of the countries. According to Global Fire Power (2022), Indonesia's military strength is based on the number of human resources, air forces, land, and sea, as well as natural, logistical, financial, and geographical resources (shown in Table 2). It holds a power index score of 0.2251 (a score of 0.0000 is considered 'perfect').

### Efforts and Strategies for the Independence of the National Defense Industry

The national defense industry is crucial in supporting the national defense system to ensure the survival and existence of the nation and state. A strong defense industry has two main impacts, namely the development of defense capabilities and the improvement of the national economy. In the field of defense capability development, a strong defense industry is reflected in the availability of a sustainable supply of defense equipment and facilities. The availability of such supplies is also an important condition for certainty and flexibility in developing defense capabilities, and minimizing concerns about political and economic considerations, such as embargoes or restrictions.

The Defense Industry Agency includes an integrated and synergistically designed relationship of authority and responsibility responsible for building government, users, defense industry, and manufacturing capabilities for defense and security equipment. The defense industry is led by the government, which is coordinated by the Defence Industrial Policy Committee



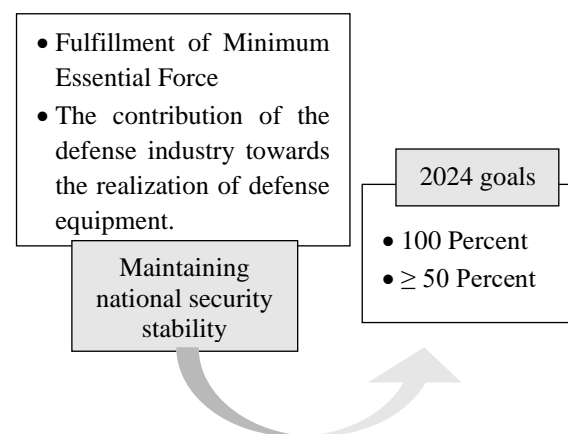
(KKIP), under the mandate of presidential decree No. 42/2010. KKIP, which is headed directly by the President, is responsible for determining the strategic direction for the development of the national defense industry that is strategic by accommodating the interests of users and the defense industry.

The defense industry as contained in the 2020–2024 National Medium-Term Development Plan (RPJMN) is considered not optimal. This is because the need for defense and security equipment tools (*Alat Peralatan Pertahanan dan Keamanan* or *Alpahankam*) has been able to be met by the defense industry, but for several types of defense equipment strategies such as fighter aircraft, destroyers, rockets, missiles, Unmanned Combat Aerial Vehicle (UCAV), and radar still rely on production from abroad. Mastery of key technologies, system integration capabilities and compliance with regulations are requirements so that the defense industry can increase its contribution to the fulfillment of defense and security equipment tools. In realizing the achievement of the Defense Industry, targets and indicators are set as contained in the 2020-2024 RPJMN, as can be seen in Figure 3.

Meanwhile, in realizing the independence of the national defense industry, the government has formulated a master plan for the development of the defense industry starting in 2010 until 2029, where it is hoped that in that year the target of significant defense industry independence will be achieved, the ability to collaborate internationally and sustainable development, so that the defense industry can meet the domestic market, can compete with foreign products and contribute to economic growth.

The formulation of the master plan for

the development of the defense industry is adjusted to the target of developing the strength of the defense and security equipment tools until 2029. The master plan has two main targets, including the main weaponry system and the defense industry. The target of the main weaponry system is a system with high mobility, while the target for the defense industry is to fulfill the short-term domestic market, be competitive internationally, and be able to support economic growth. In addition, a development roadmap for the defense and security equipment tools product has also been created and divided into three phases, namely Mastery of Design 2010-2014 (phase 1), Technology Mastery 2015-2019 (phase 2), and New Development 2020-2025 (phase 3). The roadmap for the development of the defense industry contains seven priority programs for the national defense industry, namely propellants, rockets, missiles, medium tanks, radar, submarines, and fighter aircraft. Three of the seven national priority programs have achieved encouraging results, namely the tiger medium tank, submarine, and RHan-122B rocket (Yanto, 2019).

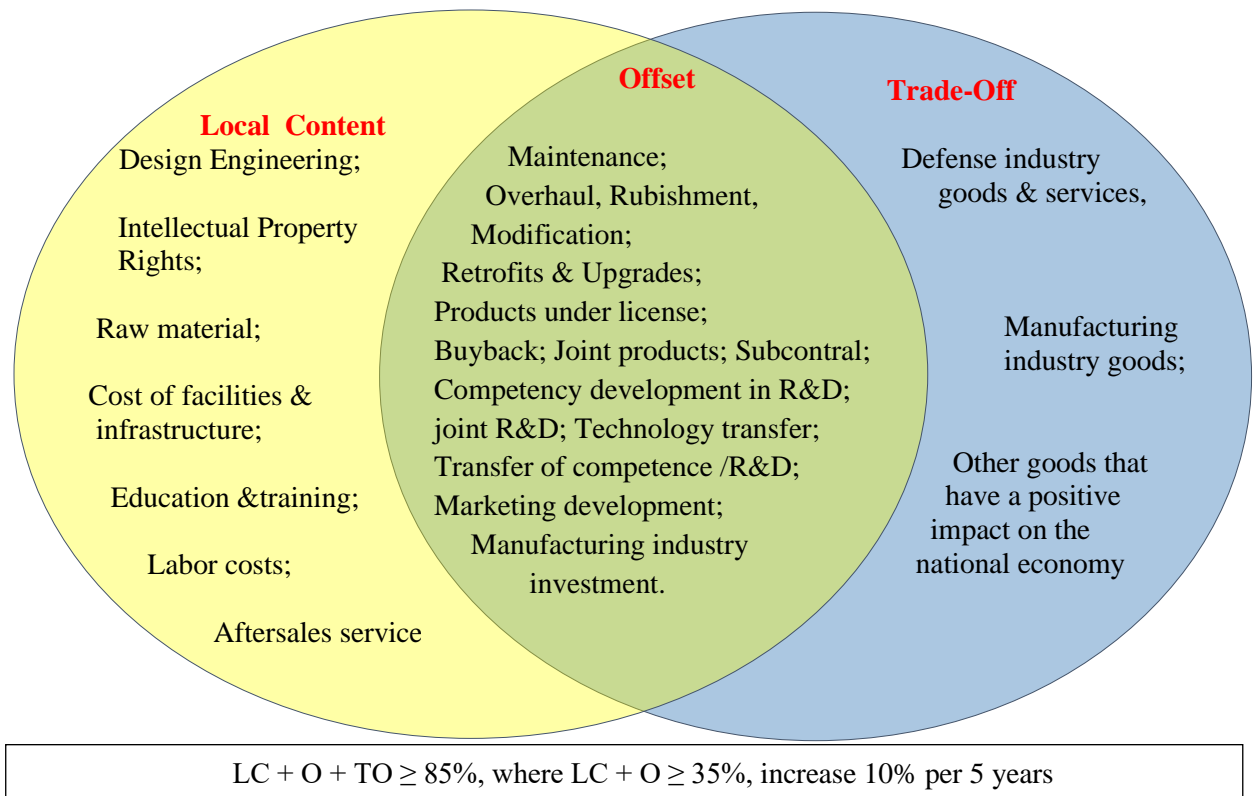


**Figure 3.** Goals, targets, and indicators of the defense industry

Source: Regulation of the President of the Republic of Indonesia Number 18 of 2020 Concerning the 2020-2024 National Medium-Term Development Plan



**Figure 4.** Defense industry master plan 2010-2029  
*Source:* Budiman, Ardipandanto, Fitri, & Dewanti, 2021



**Figure 5.** Details for trade return, local content, and offset  
*Source:* Siahaan, 2022



Law of the Republic of Indonesia Number 16 of 2012 Concerning the Defense Industry stated that the implementation of the defense industry is aimed at realizing:

1. A professional, effective, efficient, integrated, and innovative defense industry;
2. Realizing the independence of the fulfillment of the defense and security equipment tools and increasing the ability to produce it;
3. Develop defense industry technology that is beneficial for defense, security, and public interest;
4. Increase economic growth and employment; and
5. Build and improve strong human resources to support the development and utilization of the defense industry (Law of the Republic of Indonesia Number 16 of 2012 Concerning the Defense Industry).

By looking at the current conditions, procurement activities for defense security by buying from abroad must be regulated in such a way as to continue to lead to the independence of the domestic defense industry. Law of 2012 concerning the Defense Industry Law and Presidential Decree No. 76 of 2014 concerning countertrade mechanisms in the procurement of defense and security equipment from abroad serve as a legal umbrella for the control of the defense industry.

The procurement policy is by Law Number 16 of 2012 (shown in Figure 5), which is mandatory to use domestic products including their maintenance. If the domestic industry is not able to manufacture and fulfill it, then the Government to Government imports (G to G) with the following conditions:

1. Involving the domestic defense industry
2. Mandatory transfer of technology
3. There is no embargo or prohibition on using
4. The trade-off, local content & offset min 85 % (offset min 35%)

Law Number 16 of 2012 concerning the Defense Industry has changed with the existence of Law of the Republic of Indonesia Number 11 of 2020 Concerning Job Creation. The Law states that State-Owned Enterprises (BUMN) and Privately-Owned Enterprises (BUMS) which have been designated as the Defense Industry serve as lead integrators of the defense and security equipment tools. Thus, the implementation of the Job Creation Law opens up wide opportunities to demonstrate capabilities in the field of defense equipment production. With this capability, it is hoped that defense and security tools' needs for users will be fulfilled and in turn, this will have the impact of increasing the deterrence effect.

### **Defense Industry and Nationalism**

The current condition of the national defense industry can be seen as a broad and interrelated social phenomenon. The basis of the defense industry, namely defense industry policy and the quality of human resources for the management and development of defense science and technology, is considered to be still weak so efforts to overcome this phenomenon and a strategy to realize the independence of the national defense industry are urgently needed. The government through policies and laws in the field of defense industry has regulated the management and implementation of the defense industry which involves agencies including the government, users, and the domestic defense industry which is carried out in an integrated and synergistic manner.

The efforts and strategic independence of the defense industry cannot be separated from the desire of the Indonesian Nation State to maintain sovereignty, territorial integrity, and security from various multidimensional threats. Sovereignty in the sense of defense means having the ability and independence to defend oneself, enforce its regulations and achieve national interests (Fasilkom UI, 2020). So, the spirit of nationalism and pride as a nation is

needed by every citizen of Indonesia. As Soekarno said, nationalism is not only born from the same destiny and the desire to unite but also nationalism is born from a geopolitical understanding that humans and their place as a unified whole cannot be separated so every generation must fight for it.

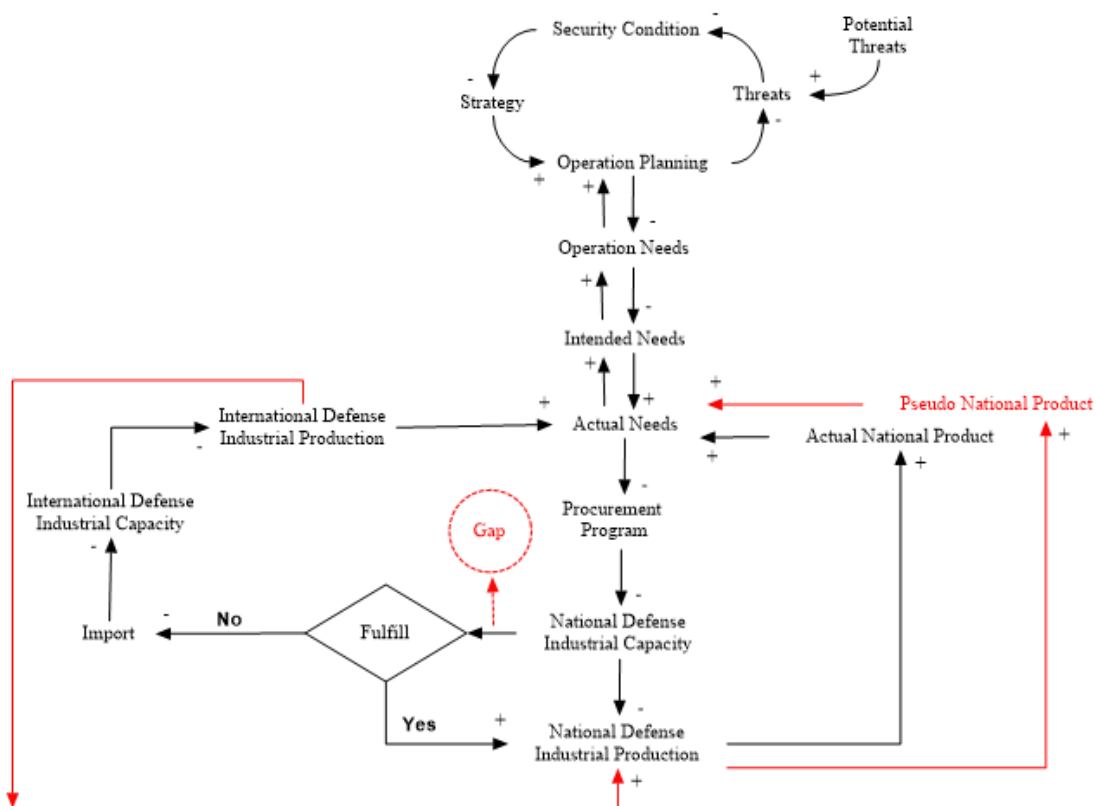
With the systems thinking approach, we can analyze the phenomenon of the defense industry. For us to see the bigger picture related to the emerging needs of the country's defense industry, barriers and policies are selected for this phenomenon.

Figure 6 shows the defense industry system model starting from a potential threat that poses a real threat, then it will threaten national security conditions. This requires a strategy that is realized in the form of operational planning, then launched in the threat mitigation operation. Operations planning produces the desired requirements and is realized in actual

needs. This actual need requires a procurement program. This procurement program asks the domestic industry first, because of the obligation to support products from the domestic industry. At this stage, the national defense industry is not able to meet the defense and security requirements caused of several gaps, including:

1. The need for raw materials with quality according to standards
2. Production facilities
3. Human resources and technology
4. Large budget and long time for research and development

If the national defense industry does not yet have independence, it can experience an embargo at any time and the implication is the paralysis of the national defense industry sector because imported raw materials or defense equipment used for production activities or military operations are not available.



**Figure 6.** A system model of the defense industry problems in the context of nationalism  
*Source:* Muhammad, Tasrif, & Hartati, 2013

**Table 3.** The weaknesses and threats of the system model of the procurement process in the domestic defense industry

<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• The budget for the defense industry is still low, even though it involves high materials and technology</li> <li>• Purchase of TNI defense equipment is never massive and too diverse</li> <li>• Supply management depends mainly on foreign parties</li> <li>• Raw materials are still imported</li> <li>• Cannot compete in the market with other countries</li> </ul>
<b>Threats: Pseudo Phenomena</b>
<ul style="list-style-type: none"> <li>• <b>Economy:</b> Foreign exchange flows abroad and does not have the effect of increasing employment from within the country.</li> <li>• <b>Social:</b> Public deception</li> <li>• <b>Legal:</b> Law no. 16 of 2012 has the potential to be played by the collusion of the domestic defense industry with foreign countries to get a contract</li> <li>• <b>Technology:</b> There is no transfer of technology, the domestic industry that does Pseudo is not the owner of the technology patent, and the domestic defense industry that does Pseudo does not do research and development</li> </ul>

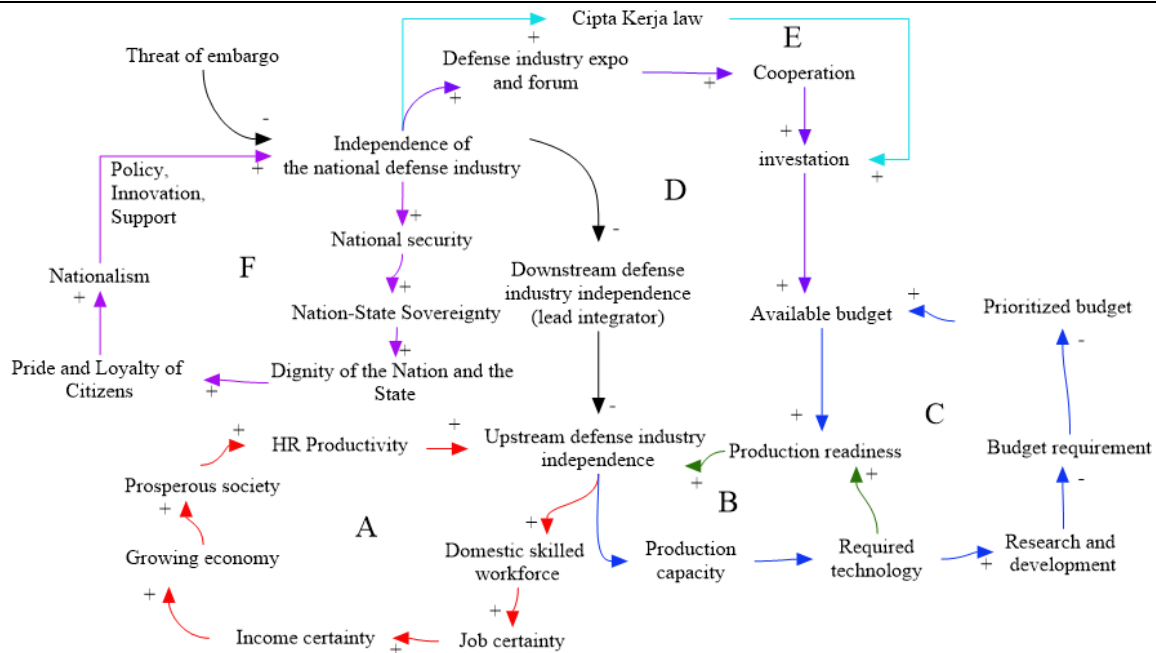
*Source:* Processed by the Authors, 2022

Furthermore, if the capacity of the domestic defense industry is lacking and does not fulfill it, the procurement program will ask the international defense industry to fulfill it. The issue is that when the market is won by the domestic industry, manufactured products are ordered from the foreign industry. Then the process of either rebatching or fully assembling is carried out as a non-national product which is recognized as domestic industrial production. These non-national products are then recognized as national products and supplied to the country's actual needs. This phenomenon is known as the Pseudo national product. Although there are advantages to this pseudo activity, because

the domestic defense industry players are only brokers and the actors do not need to spend research funds for technology development, this is not justified and does not have the spirit of nationalism. Analysis of the weaknesses and threats that arise from the system model of the procurement process and the condition of the domestic defense industry is shown in Table 3.

To unravel the phenomenon of the weakness of the defense industry, the government needs to step in directly to improve the current procurement system, budget, and human resources quality. The structure of the solution system and the relationship between aspects of the phenomenon of the weakness of the defense industry, the government's efforts and strategies, and the sense of nationalism of Indonesian citizens in a system model are shown in Figure 7. Figure 7 will be described as follows:

**Loop A:** Starting from a threat in the form of the defense and security equipment tools embargo which will ask for the independence of the national defense industry. The independence of the domestic defense industry requires the independence of the downstream and upstream defense industries. This independence of the defense industry will absorb skilled workers from within the country for the production process. This results in job security and income certainty. With the certainty of income, people will increase their purchasing power and consumption so that economic activity flows and grows. A growing economy will increase people's welfare opportunities. A prosperous society will live a more decent and healthy physical condition. This will increase the productivity of human resources which will support the independence of the upstream and downstream defense industries.



**Figure 7.** A System model of solution: domestic defense industry and nationalism  
 Source: Processed by the Authors, 2022

**Loops B and C:** Upstream industry independence will require production capabilities that also demand the necessary technology. The technology needed will increase production readiness and support the independence of the defense industry. The technology needed in the production of the defense and security equipment tools will require Research and Development and will require an industrial budget taken from the needs of the State budget. This will take from the prioritized budget and ultimately rely on the available state budget. This will support the production readiness of the defense industry.

**Loop D:** Defense industry independence will strengthen innovations that can be introduced in national and international defense industry exhibitions. The Indonesian government through the Ministry of Defense (MoD) held an international exhibition in the field of defense industry technology that featured the latest defense industry products from various countries. The exhibition is a promotional event for international defense and security

equipment manufacturers and is held biennially as a forum to strengthen the capabilities of the local defense industry by building partnerships with foreign countries. In addition, this prestigious event is used as an effective communication and information medium to establish business contacts and transfer technology, which in turn makes a significant contribution to the development of the defense and security industry in Indonesia.

The exhibition shows that Indonesia is on its way to becoming a defense equipment manufacturer that can join the international arena. This is not ambitious, but it is a reality that we must achieve together. Because basically, Indonesia has become a country with great potential for innovation and the development of industries based on advanced technology. Today's technological progress is so rapid and subtle that global competition between nations is of great importance in determining the existence of nations. In other words, the national defense equipment industry not only improves the condition of the

country's economic independence but also gets to be a bet for the pride and respect of the country.

**Loop E:** Implementation of the law of Job Creation to realize the ease of business licensing in the defense industry. It opens up opportunities for private-owned enterprises to be involved in the defense industry for the main weapon system (Law of the Republic of Indonesia Number 11 of 2020 Concerning Job Creation). Privately-owned enterprises can produce defense equipment provided that capital ownership for the defense equipment industry must obtain approval from the Minister of Defense (MoD), as stipulated in the revision of law no. 16 of 2012. Nationalism in the defense industry cannot be separated from government policies in setting economic development strategies. This has a positive impact on increasing defense investment, defense technology, and tax revenues. The investment will increase the production of defense and security equipment tools which will produce a multiplier effect.

**Loops F:** The independence of the defense industry will increase national security and sovereignty as a Nation-State. This will maintain and increase the dignity of the nation and state to increase the pride and loyalty of citizens. We can see this in several developed countries whose citizens are proud to be identified as a nation. This will increase the love for the homeland which can create a national defense industry through policies, innovation, and community support. One of the phenomena is that the budget for the ministry of defense is the largest in the Indonesian state budget. National interests include the security and welfare of citizens. So that the welfare of the community will foster nationalism that loves the nation and its homeland.

## CONCLUSIONS, RECOMMENDATIONS, AND LIMITATIONS

The government, through policies and laws on the defense industry, has regulated the management and implementation of the defense industry, which involves the government, users, and the defense industry and is carried out in an integrated and synergistic manner. Analysis of the system thinking approach has provided a big picture regarding aspects of the defense industry phenomenon, government efforts, strategy, and a sense of nationalism as a nation-state in the system model. The product characteristics of the national defense industry have high technology and require a large budget for research and development. The problem of the defense industry's budget and the quality of human resources for the management and development of defense science and technology have given birth to pseudo-practices in the defense industry. This practice does not only pose a threat in the economic, social, legal, and technological fields but also in the industrial sector itself. Thus, the solution system model in the structure of the national defense industry is proposed for the advancement of the defense industry by introducing defense industry product innovations at national and international defense industry exhibitions. This can attract investors and enlarge the global market network. In addition, the implementation of the Job Creation Law will expand the involvement of the private industry and facilitate licensing in the defense industry. Among the solutions and their interrelationships is the independence of the national defense industry which will realize national interests, namely security and prosperity which will build a spirit of nationalism among Indonesian citizens.

This study has limitations, where the analysis is based on systems thinking approach which shows the linkages and

relationships between important factors in the defense industry and the spirit of nationalism but has not analyzed and discussed in depth these variables. Suggestions that can be given in this article are:

1. The national defense industry is a high-tech and capital-intensive industry that requires a large budget through consistent investment and budget policy support.
2. No matter how small the defense industry is when it innovates, it needs to be encouraged by the Ministry of Defense and Inter-ministerial and has supplied contracts on an ongoing basis by the Ministry of Defense and the TNI.
3. No matter how big a state company is when carrying out Pseudo practice in the defense industry, it must get strict action and there must be criminal legal consequences.
4. The Pseudo practice of the defense industry also increases the potential for collusion, corruption, and nepotism, so these practices are not only criminal acts but also unpatriotic and non-nationalist actions.

## REFERENCES

- Aida, A. N. (2021). *Potret Industri Pertahanan Indonesia*. Jakarta: Pusat Kajian Anggaran Badan Keahlian - Sekretariat Jenderal Dewan Perwakilan Rakyat Republik Indonesia.
- Anderson, V., & Johnson, L. (1997). *Systems Thinking Basics: from Concepts to Causal Loops*. Waltham: Pegasus Communications.
- Bryman, A. (2012). *Social Research Methods*. Oxford: Oxford University Press.
- Budiman, A., Ardipandanto, A., Fitri, A., & Dewanti, S. C. (2021). *Pembangunan Kekuatan Minimum Komponen Utama Pertahanan Negara di Era New Normal*. Jakarta: Pusat Penelitian Badan Keahlian DPR RI.
- Creswell, J. W. (2003). *Qualitative Inquiry and Research Design: Choosing among Five Traditions*. California: SAGE Publications, Inc.
- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches* (2nd ed.). London: Sage Publications.
- Fasilkom UI. (2020, August 25). Webinar: Strategi Universitas Pertahanan Mewujudkan Generasi Emas 2045. Retrieved September 20, 2022, from <https://www.youtube.com/watch?v=pWgyoTRCts>
- Gaub, F., & Stanley-Lockman, Z. (2017). *Defence Industries in Arab States: Players and Strategies*. Paris: European Union Institute for Security Studies. <https://doi.org/10.2815/854749>
- Global Fire Power. (2022, September 4). 2022 Indonesia Military Strength. Retrieved November 11, 2022, from [https://www.globalfirepower.com/country-military-strength-detail.php?country\\_id=indonesia](https://www.globalfirepower.com/country-military-strength-detail.php?country_id=indonesia)
- Hartati, S., Muhammad, A., Bayu, K., & Tasrif, M. (2014). Indonesian Defense Industry Model Concept: A Study Framework for Defense Industry Building. *Journal of Advanced Management Science*, 2(4), 260–266. <https://doi.org/10.12720/joams.2.4.260-266>
- Karim, S. (2014). *Membangun Kemandirian Industri Pertahanan Indonesia*. Jakarta: Gramedia.
- Law of the Republic of Indonesia Number 11 of 2020 concerning Job Creation.
- Law of the Republic of Indonesia Number 16 of 2012 concerning the Defense Industry.
- Ministry of Defense of the Republic of Indonesia. (2015). *Buku Putih Pertahanan Indonesia*. Jakarta: Kementerian Pertahanan Republik Indonesia.
- Ministry of Defense of the Republic of



- Indonesia. (2021). *Sistem Pertahanan dan Keamanan Rakyat Semesta (Sishankamrata) Abad ke-21*. Jakarta: Kementerian Pertahanan Republik Indonesia.
- Ministry of Defense of the Republic of Indonesia Directorate General of Defense Potential. (2021, May). Mendorong dan Memajukan Industri Pertahanan Indonesia: Menuju Kemandirian Pemenuhan Kebutuhan Alat Peralatan Pertahanan & Keamanan. *Pothan Magazine*.
- Muhammad, A. (2022). *Pendekatan Sistem dalam Manajemen Industri Pertahanan*. Jakarta: Universitas Pertahanan Republik Indonesia.
- Muhammad, A., Tasrif, M., & Hartati, S. (2013). Redesigning the Structure of Republic Indonesian Defense System; An Analysis of Systems Thinking. *The Asian Journal of Technology Management*, 6(1), 15–36. Retrieved from <https://journal.sbm.itb.ac.id/index.php/ajtm/article/view/771>
- Muradi. (2015). Model Pendanaan Industri Pertahanan dan Peningkatan Sumber Daya Manusia. *Jurnal Pertahanan & Bela Negara*, 5(2), 213–224. Retrieved from <https://jurnal.idu.ac.id/index.php/JPBH/article/view/365>
- Regulation of the President of the Republic of Indonesia Number 18 of 2020 concerning the 2020-2024 National Medium-Term Development Plan*.
- Senge, P. M. (1997). *The Fifth Discipline: The Art and Practice of The Learning Organization*. New York: Doubleday.
- Siahaan, T. (2022). *Kapita Selekt Teknologi Industri Badan Usaha*. Jakarta: Universitas Pertahanan Republik Indonesia.
- Soetjipto, A. W., & Yunazwardi, M. I. (2021). Papuan Nationalism within the Framework of Indonesian Nationalism. *Global Strategis*, 15(1), 25–50. Retrieved from <https://e-journal.unair.ac.id/JGS/article/view/21935/13569>
- Stockholm International Peace Research Institute. (n.d.). The Independent Resource on Global Security. Retrieved September 20, 2022, from <https://www.sipri.org/databases>
- Yanto, S. (2019). Mewujudkan Industri Pertahanan yang Kuat, Mandiri, dan Berdaya Saing dalam Mendukung Pembangunan Kekuatan Pokok Minimum (MEF) TNI. *WIRA: Media Informasi Kementerian Pertahanan*, 39–44.