



Defense Industry Arrangement; Between Business and National Security, Case Study of Defense Industry Development in Indonesia

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ABSTRACT

The government's policy to innovate defense technology for developing countries needs to consider the needs of the domestic military rather than seeking economic benefits. However, in a democratic government, the private sector demands more involvement in seizing the global market and the local market. The purpose of this study is to explain the arrangement of the defense industry in Indonesia since the enactment of the Defense Industry Law. Through a phenomenological approach, the researchers found the defense industry's arrangement, the significance of the independence aspect, the dominance of the development of private companies, and the legitimacy of the defense industry development policy. The researcher suggests that the direction of the development of the defense industry is not purely looking for economic benefits. However, aspects of the impact of the development of the defense industry and comprehensive strategic cooperation with partner countries are considered in making government policies. The involvement of the private sector is growing and requires state-owned companies to be more open in seeking independence through development and innovation rather than independence, which is defined as meeting the needs of the domestic military with homemade products.

KEYWORDS; Defense industry, innovation, strategic partners, Transfer of Technology (ToT), and independence.

DOI Number: 10.14704/nq.2022.20.8.NQ44873

NeuroQuantology 2022; 20(8): 8487-8505

Introduction

The new paradigm in supporting the capabilities and functions of national defense needs to make the defense industry an independent supplier of weapons to the military (Hartati et al., 2014). Indonesia has made "independence" the principle in Law No. 16 of 2012 concerning the Defense Industry.

Even though the term independence is not explicitly defined, it can capture the meaning that the defense industry issues need governance that functions to become a mediator that connects internal and external interests to encourage continuous innovation (Melo et al., 2021). Article 3 explains:



a. realizing a professional, effective, efficient, integrated, and innovative Defense Industry; b. realize the independence of the fulfillment of Defense and Security Equipment Tools; and c. improve the ability to produce Defense and Security Equipment Tools, maintenance services that will be used in order to build a reliable defense and security force (*Undang-Undang Republik Indonesia Nomor 16 Tahun 2012 Tentang Industri Pertahanan, Lembaran Negara Republik Indonesia Nomor 5343, 2012*).

The meaning of independence is contained in protectionism. Independence comes from the word independent, which means we depend on self-made military technology. Meanwhile, protectionism is an attempt by a country to protect companies and workers from developing. The researcher wants to say that providing services for the procurement of weapons technology is through protectionism. The state's policy of using protectionism would be contrary to the demands of globalization or a free trade system. This means that the concept of independence must place itself in the concept of globalization versus protectionism. The concept of trade protectionism becomes one of the crucial issues in the analysis of public choice. Economists have long faced the conundrum of the theory that free trade deviations increase economic efficiency. Free trade harms the development of the defense industry; high-cost defense industry development in the face of low-priced imports (Fitrio, 2019).

Many developing countries are pursuing private sector development and taking advantage of privatization, and as international trade regimes are increasingly affected by protectionist threats. Private participation in global market interactions is necessary, and there is no need to privilege government-owned companies or any company. Contestability analysis provides a framework for understanding market

structure in improving economic efficiency as the basis for policy formation (William J. Baumol and Kyu Sik Lee, 1991). The market fails in building economic prosperity; there is no justice in freedom but instead a monopoly so that many economists argue about the political spectrum and the capabilities of the state. If the state is seen as a social contract, then the state does not have the subjectivity to intervene in the interests of individuals and the free market.

There are three elements to note; the state as a regulator, competing political groups, and entrepreneurs focused on economic gain, although none of them can be used as an independent guide because the state's goals cannot be generalized singly. The formation of interest groups and joint action in a country's political system is currently taking strategic policies (Hemphill & Chang, 1995). For this reason, defense industry policymakers consider the economic aspects and the multi-effects of defense industry development, even as important as aspects of defense diplomacy. System integration in the decision-making of innovation in the development of the defense industry is very conflicting. Production and Deployment achieve operational capabilities that meet mission requirements (Office of The Assistant Secretary of The Army (Acquisition, 2020). Military technology develops with various considerations; the ability to understand the market potential either by engineering or by expansion; whether to compete openly or behind closed doors; assets to exploit the new design (Fernández & Valle, 2019).

Giddens (1976, re-2013) explains that production and reproduction in society involve human actions and presupposes structures with others (Giddens, n.d.). Labor productivity is directly related to capital, while education and training quality are determined. (Dieppe, 2021). Research and development take about five or ten years; for mass product defense equipment, it usually takes a longer period, and in some cases, it



may take 15 to 25 years from the primary research stage to mass production. Therefore, the innovation effort faces many challenges, both legal, political, and economic problems. The interests of many parties determine the sustainability of a country's innovation. Regardless of the relationship between innovation strategies, innovation motivation is attached to the performance of an institution, and innovation is an integrated system (Damian & Manea, 2018).

Aspects of defense diplomacy are building relationships with opposing or potential opposing countries and being able to make state-of-the-art technology a game changer (Brimley et al., 2013). There are no longer solid and weak negotiations to determine profit and loss in today's diplomacy, but diplomacy uses soft power more ("The New Public Diplomacy Soft Power in International Relations," 2005). In the grand strategy of a country, the strength of military technology is not the main, but how together with the strength of the community itself, economy, stability, diplomacy which always supports national security (Hooker, 2015). For this reason, the military technology business needs to be considered from the perspective of military strategy, defense diplomacy; in the end, the calculation of effectiveness and value for money is an important instrument. In the end, structuring innovation in the development of the natural defense industry in developing a national strategy (Taylor et al., 2014).

Defense Industry Development in Indonesia

In principle, every country wants to be strong and supported by a military force with advanced military technology. Unfortunately, the high-tech defense industry is only controlled by a few companies, or in the business world, it is called oligopoly. The principle of oligopoly is supply and demand to maximize profits. Maximum profit will be achieved when companies do a combination

(Stigler, 1964). In fact, the combination between companies occurs if they are both at the same level. For that, local and national companies will be unable to compete with companies that have developed and are owned by international communities. A country's policies are seen in making regulations to support the defense industry and are designed and operated primarily for the benefit of the country itself. The private sector is more involved in democratic countries, so more support and things affect the regulators made by the government. (Coglianese, 2012) Private companies are more developed in the era of democratic government. The state, market, and civil society cannot be contradicted—the international community's state. Civil society grows and develops, solving problems without a hierarchy of various non-state actors (Stoker, 2009).

Indicators of progress in the development of the defense industry of each country are not always the same. Three things make indicators different; first, elements to construct indexing, several additional factors are being measured. Secondly, because of the other choices of instruments used. Moreover, the third is indeed a different approach method (UNCTAD, 2014) (Bandura & Del Campo, 2006). Developed countries remain the winners because they have the ability in terms of efficient management, capital, institutional, which are the main determinants of the success of innovation (Gogodze, 2016). Although the indicators of a nation's technological progress can be measured, the researcher wants to say that the politics of a nation determine the progress. The political product in question is a regulation that regulates the behavior of state officials in making decisions. If the political elite does not have a solid intention to innovate, the result is that innovation will not occur. The Ministry of Defense needs to find a breakthrough to integrate through a fast process and



bureaucracy (James Manyika and William H. McRaven, 2019).

The mapping of policies that promote industrialization can describe the distribution of wealth among elites in various political institutions. The ruling political elite tends to increase development; on the contrary, democratization emphasizes the industrialization process, for that the elitist regime ushers in the Industrial Revolution as evidence (John Lipczynski, 2005). Increase the competitiveness of a country; knowledge management is needed. In general, scientific procedures can identify, analyze, predict, store and disseminate knowledge. However, applying knowledge in making decisions is more critical to improving organizational performance than emphasizing the transaction process of knowledge (Yim et al., 2004). Science is related to intelligence because intelligent people are interested in science. R. Colom, S. Karama, R. E. Jung, and R. Haier (2010) explained that intelligence could be defined as mental ability in reasoning, finding solutions to overcome problems, and following the learning process. For this reason, intelligence can integrate the functions of caring, planning, perception, memory, and expression in language (Colom et al., 2010).

The improvement in the performance of the defense industry is unique. The application of science is not enough because the highest regulations regulate strict regulations. Therefore, from the above case, it can be seen that the political issue of independence is more important than economic. In the contestation analysis, more emphasis is placed on the public interest. The boundaries between private companies and government-owned companies are not very important. Therefore, in the policy, not privatization is more important. Indeed, developing countries sometimes take advantage of democratic conditions to divert private opportunities to take over the market potential of the state. The contestation analyst is more directing the framework of

setting policies to consider competition in capturing the market, the company's performance in innovation will be more important (William J. Baumol and Kyu Sik Lee, 1991).

Sutz, Judith (2012) underlined that innovation, mastery, and utilization are indicators of the nation's progress (Sutz, 2012). The difficulty is not only a matter of innovation, but mastery is equally essential. Mastery is a political language, but in this case, it is related to legally recognized ownership. The importance of mastery of science for the development of society is becoming more critical in the competitive environment of globalization. Today's northern countries mostly create technology as the demands of the rich and ignore the poor so that mastery of technology affects inequality (James Manyika and William H. McRaven, 2019).

Indonesian Defense Industry Development Paradigm

The triple helix structure of the development of the defense industry in Indonesia in the context of the independence of the military weapon system is related to; user institutions, namely the Indonesian National Army; planning, research, and technical regulation in the Ministry of Defense of the Republic of Indonesia; implementing the Ministry of State-Owned Enterprises (BUMN). Researchers try to get data through interviews and direct observations of each segment involved in the development of the defense industry. The government's understanding is implemented in policies in the form of regulations. These policies are the decisions of authorized officials regarding the efforts, methods for developing the technology, both written and spoken. However, researchers focus on what was said by the sources and looking at the environment of the defense industry. This written decision is in the form of a manuscript, whether it is an artist's regulations, work manuals, manuals,



and others, so the research is also supported by library research. Then, confirmation will be carried out in interviews with competent officials and direct observations to related industries.

As a policy analysis study, the essence of research is finding the hidden meaning of why independence is important and why the development policy is made that way; for that, researchers use a phenomenological approach. In phenomenology for sociological studies do not find the problem of practical consciousness. Researchers in conducting research operations are more flexible than formally development tasks because researchers open up scientific discourse in communication. Academic interactions develop broader thinking, build scientific networks within the community. Claims of knowledge development are more open to building new variations and building new paradigms in science. Analogously, some factor models can be considered more meaningful than others in the light of theoretical considerations. Whereas factor models analyze data complexity on different

dimensional terms at any given moment, theoretical updates overtime of dimensions may operate selectively on multiple meanings associated with different dimensional differences with factor analysis. Thus, three levels of meaning processing are involved in the dynamics of meaning. The first human action observed is the communication relationship between humans and deduces itself from the behavior itself (Leydesdorff, 2010).

There are three steps used in this research; first, understand human action. At this time observes humans are interconnected with their goals and interests. The researcher observes the relevant officials in the ministry and military environment; then, the data is collected as much as possible and reduced by theory so that the indicators can be found. Second step; interaction. Latent structure organizes meaning; different meanings become structural components. The third step, coding rules, discussed shows understanding, perceptions from the work structure and can even determine the direction of the law used.

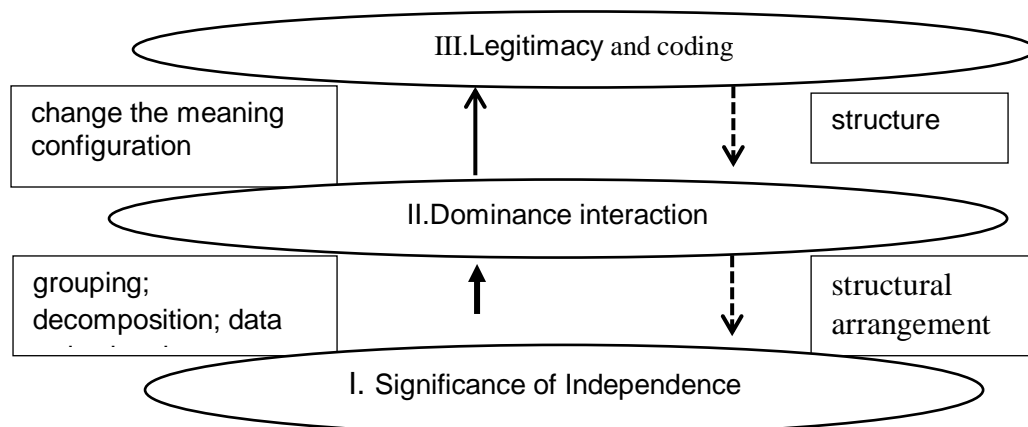


Figure1: Policy Paradigm in Discursive Knowledge Development, taken from Leydesdorff (2010a)(Leydesdorff, 2010) and Gidden (Giddens, n.d.).



Tampubolon, Manahan P. (2020) explains that the organizational goals of a company affect employee performance (Tampubolon, 2020). Likewise, in the scope of the state as an organization. The development of the defense industry through the concept of "independence" contains ambiguity. On the one hand, it intends to advance the defense industry to meet its own needs, but on the other hand, the industry's capabilities are limited and faced with internationalization in the era of free trade. The interests of the global community in various forms. Both in intellectual property and various procedures for producing and using it. Indonesia will be able to take advantage of free trade if the discovery and development of mineral resources and the export of high-quality producer goods are the keys to industrial development and rapid economic growth (Hirschman & Mogford, 2009). It is somewhat different from the development of the defense industry because the transfer of technology is related to military capabilities. For this reason, defense business strategy transactions are more specific but still pay attention to the needs of the domestic military, sensitive business partners related to global market development, overcoming cooperation barriers, and utilizing the supply chain potential of private companies (Hooke et al., 2005).

Defense industry policy is legally vested in the Defense Industry Policy Committee (KKIP), which was formed through Law No. 16 of 2012 concerning the Defense Industry. KKIP, which has a vision of realizing the independence of the defense industry, has also formulated a Master Plan for the development of the defense industry starting in 2010 to 2029, which is expected to achieve the target of significant defense industry independence, the ability to collaborate internationally and sustainable development, so that the defense industry able to 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 weapons systems and security levels until 2029, where an ideal posture for the Armament Systems has been achieved, which has high mobility and powerful hitting power. KKIP has also compiled a Road Map for the Development of Military Armaments Products, which is divided into three phases, namely Phase 1 Mastery of Design 2010-2014, Phase 2 of Mastery of Technology 2015-2019, and Phase 3 of New Development 2020-2024. The Road Map contains seven priority programs for the national defense industry.

In practice, the development towards independence in the industrial sector can be understood by stakeholders by modernizing the defense industry. The Defense Industry Law serves as a guide in directing the development of its own defense industry base. Several steps are needed to ensure smooth implementation: first, the establishment of a strong and clear implementation mechanism that includes clear objectives with a definite time limit that allows accountability and full compliance with the law; second, the commitment to reduce the gap between budgets; Third, the need to take steps to ensure complementary policies as supportive and operational measures; fourth, guaranteeing policy harmonization among stakeholders; and fifth, the need for greater openness and flexibility regarding international opportunities in the arena of defense industry cooperation. The spirit of technology and absorption capacity in Indonesia must be supported by more practical, strong, and flexible policies (Tijaja & Faisal, 2014).

In general, the President assisted by the Minister of Defense, becomes the subject in making policies for the Development of the Defense Industry. The structure of policy formation in the field of Defense Law of the



Republic of Indonesia Number 3 of 2002 concerning National Defense. Article 13 (1) The President is authorized and responsible for managing the national defense system. (2) In managing the national defense system, the President shall stipulate a general policy on national defense which becomes the reference for planning, implementing, and supervising the national defense system. In determining the general policy of national defense, the President is assisted by the National Defense Council. The function of the National Defense Council is as an advisor to the President in establishing general defense policies and the deployment of all components of national defense.

In principle, national defense efforts, according to BambangPranowo (2010), are carried out by building, maintaining, developing, and using state defense forces based on the principles of democracy, human rights, public welfare, the environment, provisions of national law and international law (Pranowo, 2010). The president of the general defense policymaker, generally assisted by the National Security Council in the political strategy and the Defense Industry Policy Committee (DIPC), coordinates the defense industry's development. The Minister of Defense establishes policies for the implementation of national defense, including preparing a white paper, establishing cooperation policies, formulating general policies for the use of the Indonesian National Armed Forces and other defense components. Ministers determine policies on budgeting, procurement, recruitment, management of national resources, and the development of the technology and defense industry needed by the TNI and other defense components. The Minister of Defense is developing the national defense industry by increasing promotion cooperation and implementing counter trade, local content, and offset policies to improve industrial capabilities. The TNI Commander is the command of each force level; army, navy, and air force. (Karyanto,

2020) To support the defense ministry's policies academically; it has the Indonesian Defense University (UNHAN RI) and the Indonesian Ministry of Defense Research and Development Agency (BALITBANG) KEMHAN RI). Administrative management to coordinate with the defense industry, the Indonesian Ministry of Defense under the Director-General of Defense Potential (DIRJEN POTHAN), so that the triple helix runs under the Indonesian Ministry of Defense itself.

The Minister of Defense of the Republic of Indonesia also cooperates with the heads of departments and other government agencies and prepares and implements strategic plans for the management of national resources for the benefit of defense. The TNI Commander leads the Indonesian National Armed Forces to carry out military use at the strategic, operational, and tactical levels. Each force, both Army (AD), Navy (AL), and Air Force (AU), is tasked with building strength, and under the force has a Research and Development Agency (BALITBANG). The Commander in Chief has the authority to use all components of state defense in carrying out military operations based on the law. The Commander is responsible to the President in the use of the components of state defense and cooperates with relevant ministers in meeting the needs of the Indonesian National Army. In dealing with the form and nature of non-military threats outside the authority of the defense agency, the countermeasures are coordinated by the head of the agency according to their respective fields.

In order for the defense industry development program to run well, the President issued Presidential Regulation No. 59 of 2013 concerning Organization, Work Procedures, and Secretariat of the Defense Industry Policy Committee, Membership composition: a. Chairman: President b. Chief Executive: Minister of Defense c. Daily Deputy Chairperson: Minister of SOEs d. Members: Minister of Defense, Minister of SOEs, Minister of Industry, Minister of Research and

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Technology, Mendik, Menkominfo, Menkeu, MenPPN/Head of Bappenas, Minister of Foreign Affairs, Commander of the Indonesian Armed Forces, and Chief of Police. Related to the development of the defense industry by the Indonesian Ministry of Defense and the Indonesian National Armed Forces internally.

The role of the DPR RI in this regard is very large in controlling policies and the use of the budget; for that, the DPR RRI is the spearhead for the Indonesian people. Indeed, the Supreme Audit Agency (BPK) is a state agency that specifically examines financial problems in the implementation of the state budget, but in reality, it is difficult to do so in

relation to defense equipment because it involves state secrets, especially when the BPK leader is political. It must be realized that defense costs are fully financed by the state without seeing direct economic benefits so that the impact cannot be measured quantitatively. However, some of these studies have been carried out even though they are still within academic limits, so in the future, it is important to explore both methodological aspects and their use. From the description above, the structure of self-reliance in the development of the defense industry can be simply described:

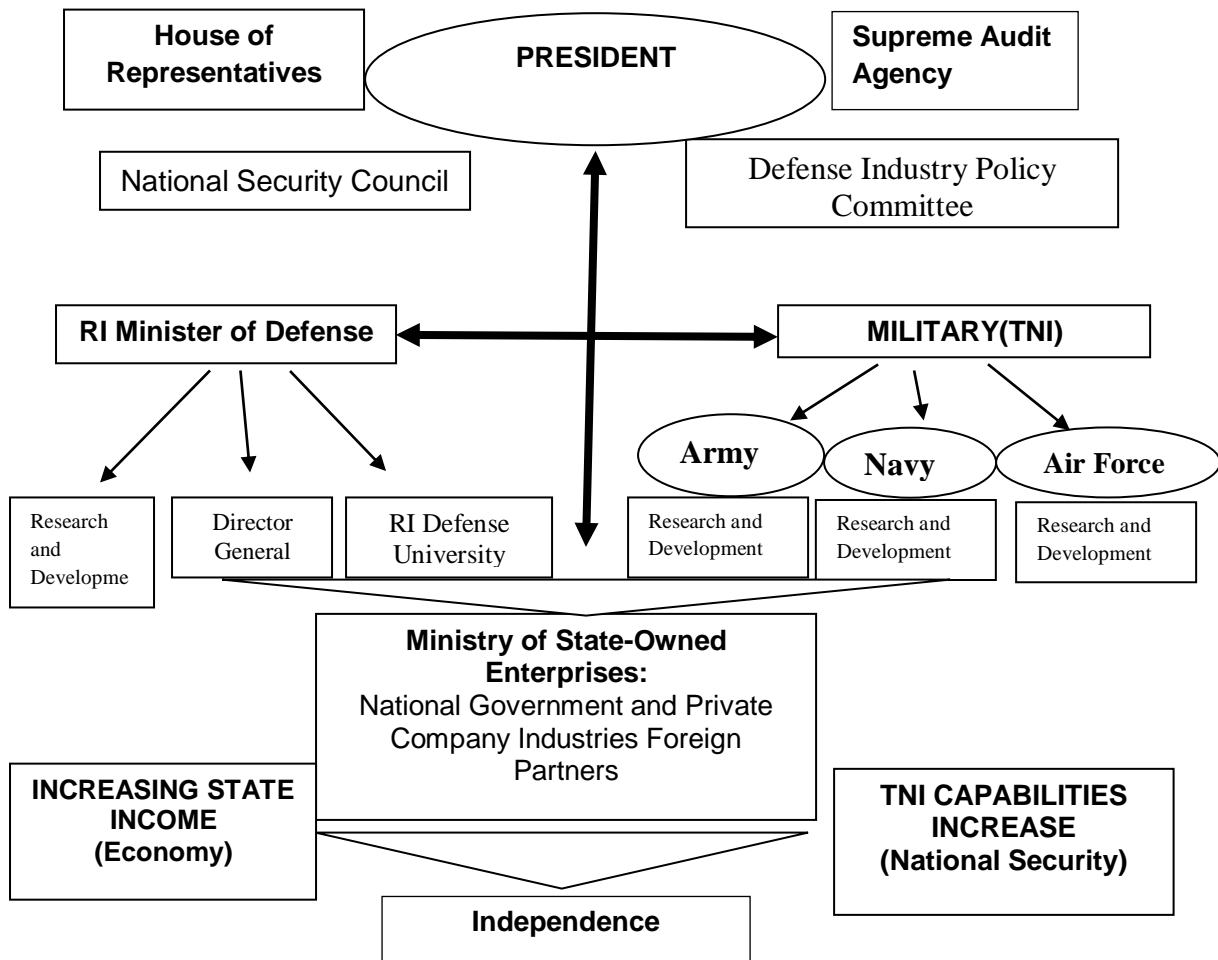


Figure 2: Structure of the Self-Defense Industry Development



4.2 Dominance of Private Enterprise Development

Prior to the reform of the defense industry, almost all of them were controlled by State-Owned Enterprises (BUMN), but now in 2021, the Ministry of Defense of the Republic of

Indonesia has recorded 117 defense industry companies managed by private institutions or Private-Owned Enterprises (BUMS). In general, it can be described that BUMN and BUMN are engaged in the defense industry:

Num.	State-owned enterprises	Production
1.	PT. DI	Fix Wing, Rotary Wing, Rocket, Missile System and Torpedo as well as Maintenance and Maintenance Repair and Overhaul (MRO) of Aircraft,
2.	PT. PINDAD	Weapons, Munitions, Armor, Rantis, and Cyber Defense
3.	PT. PAL	Submarine. Strategic Sealift Vessel (SSV), Warships and Commercial Ships up to 50,000 DWT
4.	PT. DAHANA	Bomb P100 L, Explosives (Military & Commercial)
5.	PT. LEN	HF/VHF/UHF communication tools (Manpack, Base Station, Mobile and Hand held), Surveillance, Combat Management System, Solar Power
6.	PT. INTI	Video Surveillance System, Next Generation Video Messaging System, Digital TV System
7.	PT. KRAKATAU STEEL	Steel KSW 500 (bullet resistant), Hot/Cold Rolled Coil, Wire Road
8.	PT. INKA	Train Carriage ; Passengers & Freight
9.	PT. BHARATA INDONESIA	Bomb Basket, Smart Bomb F-16 & heavy equipment
10.	PT. BOMA BISMA INDRA	Power generation equipment (Paiton), Cement factory equipment, sugar, ammonia etc.
11.	PT. DOK PERKAPALAN SURABAYA	LCT, LCU, KRI Repowering ships
12.	PT. INDUSTRI KAPAL INDONESIA	Patrol Vessels, Cargo Ships, Fishing Vessels, Tugboats

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Figure 3; State-Owned Enterprises (BUMN) and the types of products produced.

Num.	Private Owned Business Entity	Production
1.	PT. KiranaAcitya	Computer Based 81 mm Mortar Counting Machine Ground Control System (GCS) Mobile UAV
2.	CV. SARI BAHARI	Train Air Bomb (P100)
3.	PT. PALINDO	Missile Speed Boats, Patrol Boats



4.	PT. LUNDIN INVEST	Missile Fast Ship (Trimaran& Catamaran), RIB
5.	PT. STARION	Vehicle bodies and Tactical Vehicles
6.	PT. CMI	Radar, Vsat for Satellite Ground Segment
7.	PT. LANGIT BIRU	People Air Umbrella

Figure 4; Private-Owned Enterprises (BUMN) and the types of products produced.

To open up equal opportunities between various parties providing goods and services, the Ministry of Defense of the Republic of Indonesia has set 7 priority programs (Susdarwono, 2019), in addition to the White Paper on Defense of the Republic of Indonesia being general guidelines for all parties involved in the implementation of national defense, namely:

a. Submarines through the purchase of 3 KS from South Korea, ships 1 and 2 were made in South Korea, and one ship was combined at PT PAL Surabaya through the Joint Section program;

b. Medium Tank, in collaboration with Turkey through Indian FNSS and PT Pindad with joint production by producing prototypes, namely 1 for Turkey and 1 for Indonesia;

c. The Indonesian Fighter Experiment and Korean Fighter Experiment or IFX/K-FX fighter aircraft were jointly produced from 2012 to 2026. Based on a memorandum of Understanding between The Ministry of Defense of The Republic of Indonesia and The Ministry of National Defense of The Republic of Korea on Joint Development of Korean Future Fighter (KF.X) On July 5, 2010, in Seoul, this program resulted in 6 prototypes, namely 5 for Korea and 1 for RI, the cost of 80% Korea and 20% RI I-FC/K-FX project handled by Korean Aircraft Industry (KAI) and PT Dirgantara Indonesia);

d. Propellant is handled by PT Dahana, a BUMN;

e. The R-Han 122 rocket, handled by a consortium of PT Pindad, PT DI, PT Dahana, and LAPAN;

f. The missiles are handled by the Ministry of Defense's BPPT-Balitbang consortium; PT DI;

g. Radar is handled by the idem consortium and LAPAN.

Based on a series of government policy guidelines, including the National Security Strategy, to ensure an adequate level of quality and defense capability and need to improve prevention and response capabilities, it is necessary for the Ministry of Defense of the Republic of Indonesia with limited resources and also look at and consider the medium-term defense posture, strengthen technology that is considered important for national security requirements ranging from innovative technology that can be a game-changer, to advanced technology that can be applied to existing defense equipment.

The Ministry of Defense formulates a defense technology innovation strategy that practically and effectively strengthens technological capabilities, which are the basis for increasing national defense capabilities. In this strategy, the goal of technology policy within the Ministry of Defense, as stated in the White paper, is that changes in the environment around defense technology are related to threat factors in the environment that are considered to be occurring. Diplomacy is carried out by implementing better management to implement state political policies to achieve state interests. Therefore, defense diplomacy can be interpreted as an effort to adapt to one's own security policy. When building the defense industry, defense diplomacy is able to select the right cooperation partners. Therefore, the main goal of defense diplomacy is jointly implementing state security policies in creating international relations (Drab, 2018).



1.3. Legislation of Defense Industry Development Policy

Independence in the law as a principal in the law if it is interpreted as self-production is contrary to the policy of providing military technology in a short time which requires imports. The term independence is a political desire that is motivated by an embargo on the purchase of military aircraft by the United States. The embargo policy by the United States was because Indonesia was considered responsible for human rights violations (Luthfi, 2021). A valuable lesson for the Indonesian people is to have the ability to develop the defense industry independently. Relevant frameworks for policymaking, exploring transformative innovation should be a priority (Schot & Steinmueller, 2018).

This researcher understands the implementation of defense industry innovation by using the triple helix; government, academia, and business people (*Defence Industry Strategy*, 2017). In the development of the defense industry, the government is the regulator, the military is the user, and the company is the producer. The military as the user is the starting point why the industry was developed. Technology is basically to help solve problems that users face. The military takes policies based on strategic calculations, both threats, and capabilities. So the defense industry is a technology to support military tasks. However, the polemic regarding the purchase of the AW 101 helicopters seems to reveal the secret of the defense equipment procurement. RI Minister of Defense RyamizardRyacudu said that the AW 101 was originally ordered for a presidential helicopter, so it was purchased through the State Secretariat (Setneg) (*Menhan Tegaskan Tolak Pembelian Heli AW-101 Sejak Awald dddddd*, 2018). So the Minister of Defense knows nothing. Meanwhile, the TNI Commander said that since the Regulation of the Minister of Defense of the Republic of

Indonesia Number 28 of 2015-2014 concerning the National Defense Development Planning System, the TNI Commander is no longer involved.

State institutions have regulations that regulate making decisions about who does what in what context. The operation of the TNI as state power is under the control of the President; this is in accordance with Article 10 of the 1945 Constitution, which reads that the President holds the highest power over the Army, Navy, and Air Force. According to the Indonesian Minister of Defense RyamizardRyacudu, the purchase or procurement of weapons in Indonesia must obtain permission from the Ministry of Defense so that there will be no more noise regarding the purchase of weapons by the Indonesian Armed Forces, ministries, and agencies.

Member of Commission I DPR Ahmad Muzani assessed that there were irregularities in the Minister of Defense Regulation No. 28 of 2015. Suzani considered this regulation to make the TNI Commander appear to have no troops. Previously, the TNI Commander General GatotNurmantyo assessed that the issuance of the Minister of Defense Regulation No. 28 of 2015 limited his authority to monitor the flow of goods spending planning in three dimensions. Commission I suggested that President JokoWidodo, Minister of Defense RyamizardRyacudu, and the TNI Commander sit together to discuss this regulation so that coordination is effective and does not overlap. Coordination between TNI Headquarters can be effective and even better so that our troops can truly be in one control. There needs to be a harmonization meeting to discuss the crucial points in the Regulation of the Minister of Defense of the Republic of Indonesia. According to Ahmad Muzani, this Regulation of the Minister of Defense of the Republic of Indonesia seems to give the Minister of Defense the authority to cut the authority of the TNI Commander in regulating the needs and budget of the three



dimensions. He suggested that the Regulation of the Minister of Defense of the Republic of Indonesia concerning the National Defense Development Planning System be reviewed. This step is considered to be able to improve relations between TNI Headquarters and the Regulation of the Minister of Defense of the Republic of Indonesia. Then it was discussed again so that the control over the Army, Navy, Air Force could be even more coordinated. In line with Muzani, Deputy Chairman of Commission I MeutyaHafidz said that his party had scheduled a special meeting related to the problems that the TNI Commander complained about. However, Mutya Member of Commission I DPR RI asked to ask Gatot and Ryamizard to resolve it internally first. Commission I asked the Minister of Defense and the TNI Commander to sit down together to synchronize the regulations, and no one should violate the law.

Previously, the TNI Commander said that the issuance of Regulation of the Minister of Defense of the Republic of Indonesia No. 28 of 2015 removed his authority to monitor the flow of planning for the expenditure of defense equipment in each dimension. With the Regulation of the Minister of Defense of the Republic of Indonesia No. 28 of 2015, the TNI's obligation is only to make long, medium, and short-term plans. According to the Commander, then the Commander is the same as the TNI Headquarters Detachment. I don't control the Army, Navy, Air Force. Why? Law 25/2004 states that the visionary planning flow uses a bottom-up, top, down mechanism in an integrated manner. All decisions of the Minister of Defense of the Republic of Indonesia are correct and systematic. But when the Minister of Defense Regulation No.28 of 2015 appeared, the authority of the TNI Commander did not exist. The picture above shows that the discourse on the development of the defense industry at the elite level is minimal. It is true that Mosca (2016) stated that the elite level prioritizes

development; at the democratic public level, it encourages the development of defense industry innovation. To see how public discourse develops and is implemented by institutions. It can be described in crucial terms in regulations. Regulations related to defense technology innovation, which are estimated to have the most influence on the discourse developed in making official decisions, consisting of;

1. Law of the Republic of Indonesia Number 16 of 2012 concerning the Defense Industry (Cons.)
2. Government Regulation of the Republic of Indonesia Number 141 of 2015 concerning Management of the Defense Industry (Gov.)
3. Regulation of the President of the Republic of Indonesia Number 42 of 2010 concerning the Defense Industry Policy Committee (Pres.)
4. Regulation of the Minister of Defense of the Republic of Indonesia Number 39 of 2011 concerning Research and Development in the Defense Sector within the Ministry of Defense and the Indonesian National Armed Forces (Reg.1)
5. Regulation of the Minister of Defense of the Republic of Indonesia Number 39 of 2016 concerning the Defense Industry Technology Development Program (Reg.2)
6. Regulation of the Minister of Defense of the Republic of Indonesia Number 39 of 2016 concerning the Defense Industry Technology Development Program (Reg.3)
7. Regulation of the Minister of Defense of the Republic of Indonesia number 14 of 2020 concerning amendments to the Regulation of the Minister of Defense Number 16 of 2019 concerning the Implementation of the Procurement of Defense and Security Equipment in the Ministry of Defense and the Indonesian National Army (Reg.4)

After coding the regulatory terminology in each of these regulations, it can be described as follows;



Num.	Regulatory Terminology	Cons.	Gov	Pres.	Reg. 1	Reg. 2	Reg. 3	Reg. 4	Total
1.	Independence	17	5	-	2	1	1	0	26
2.	Innovation	1	-	-	3	-	-	0	4
3.	Engineer	15	4	-	-	-	7	0	26
4.	Development	28	13	4	34	23	22	2	126
5.	Research	21	7	3	33	16	16	1	97
6.	Mastery	7	5	-	1	3	2	3	22
7.	Utilization	6	-	1	7	1	1	1	18
8.	Purchase	8	2	2	-	-	-	-	12
9.	Sale	7	2	2	-	-	-	-	11

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Table 5; Crucial terminology in structuring the defense industry

From this coding data, it can be seen that the concept of "independence" was dominated when discussing the law, and innovation was minimal, only one in the law, including the implementing rules. This means that the political will of the people who are democratic is more dominant to want independence but less to think about the problem of innovation as stated by Susaningtyas member Nefo Handayani, a member of the Indonesian House of Representatives' Gerindra faction, saying that the TNI is obliged to use domestic products. Even though the condition of the defense industry companies has not been able to meet the military needs, this means that, like it or not, Indonesia must have an industry that produces military weapons technology. In making practical policies, the government assesses independence as one of the principles of the Defense Industry Law, but in practice, it is more about supply chain management.

Defense Industry Development Innovation Strategy

Independence in the management of the defense industry can be applied flexibly. Administratively, it can be explained to produce their own products, but in the implementation, the most important thing is the implementation of continuous innovation. Establishing innovation as a goal in developing the defense industry is part of a government strategy. Due to limited government advice and resources, the government must create a management system that has the support of various parties. Resource management with strong leadership will result in more optimal innovation and be implemented in a structured and consistent manner (Smania & Mendes, 2021).

The Transfer of Technology (ToT) process for providing TNI needs through actual Offsets to show conditional purchases. If you buy the usual principle, there is money



there are goods. However, purchasing through offsets, consumers buy goods but with the condition that producers also provide knowledge, so that the ToT process occurs not only to own the goods but also to control the goods. If you refer to the ToT process for South Korea as suggested by AndiWijayanto as an alternative, then the acquisition process becomes the main problem, then proceed with assimilation and improvisation. We see cooperation in the Development of KFX/IFX fighter aircraft where the acquisition stage shows that Indonesia wants classy fighter aircraft but has no experience, except for acute light aircraft such as the CN made by PT DI. There is no doubt in this program that Habibie is an aeronautical expert and many patent holders in this field.

The partnership between South Korea and Indonesia to jointly develop the Korea Fighter Xperiment/Indonesia Fighter Xperiment (KFX/IFX) fighter aircraft is facing licensing issues regarding patents. If the Deputy Minister of Foreign Affairs of Indonesia Abdurrahman Mohammad Fair (2018) said that the United States government had not approved the export of several technologies to support the joint development program, it is understandable because America as the holder of the F35 patent, has such cooperation with Korea. Third-party transfers from South Korea to Indonesia to facilitate Jakarta's involvement in the KFX/IFX program became a problem for Indonesia. Indeed, South Korea had previously received approval from the US government to secure the technology as part of their defense offset package with the United States related to the procurement of the Lockheed Martin F-35A Lightning II fighter. In fact, Indonesia, in January 2016, signed an agreement worth US\$ 1.3 billion. Indonesia projects that the joint fighter program will build 250 KFX/IFX jets, with Indonesia receiving 50 aircraft by 2020.

The most serious obstacle is the issue of patents for the development of fighter aircraft. In the Focus Group Discussion (FGD)

between researchers and the Research Development Agency Team of the Indonesian Ministry of Defense chaired by Colonel Tek Ir. Oki Yanuar with researchers in July 2018, it turns out that there are four main components that are not included in the license owned by Korea for export to Indonesia. The four components are; active Radar; Electronically Scanned Array (AESA), System; Infrared Search and Track (IRST), Optics; Electronic Optics Targeting Pod (EOTGP), and Jammer; Radio Frequency (RF). As a core component, it can be said that it cannot run without an American decision.

This issue should be opened to the public because it involves learning that technology development is not only a matter of the presence or absence of money but also the owner of the patent. Indonesia must realize and compete to make patents because patents are synonymous with wealth and indeed wealth. To that end, there is a shared passion for developing the patent together. Thus it is not only a patent in the field of fighter aircraft but also a general industrial matter. Industrial Development is synonymous with Patents; there is no development without Patents.

Although South Korea has the technology to produce the Fighter, it is seeking partnerships beyond its initial cooperation with Indonesian Aerospace, possibly including Turkish Aerospace Industries, Sweden's SAAB, and US companies Boeing and Lockheed Martin to carry out the project. For this reason, there is another side that needs to be taken into account in addition to improving human resources technically, but in the legal field, it also needs to be taken into account in order to develop within an appropriate legal corridor. When compared to thousands of developed countries every year and only a dozen Indonesia, it is a reflection that technological development is something that will be difficult to obtain. In principle, patents are innovations in solving technological problems, for that



Indonesia can be independent with a desire to be financed.

When viewed from the development scheme carried out by Indonesia for KFX/IFX, it is different from the scheme carried out by South Korea itself, which is carried out domestically. Where in Korea, internally, carefully make acquisitions first, where the license that must be owned by the aircraft is completed first, so that it can run smoothly, but sometimes the license is only handed over to Korea, and then Korea will hand it over to Indonesia will be a problem, so until now Currently, the Ministry of Defense has a hard time getting background data. The data that became the basis for the manufacture of the KFX/IFX aircraft came from the F35 Fighter.

The development of the defense industry carried out by the Indonesian Ministry of Defense with 7 Priority Programs is expected to increase military capabilities, especially to meet the needs of the TNI. When compared with the development of military technology that is currently developing in the South China Sea, it seems that it is not meant to keep pace with China or America and the Allies. However, researchers almost agree with Muradi in the Development of Defense Technology through cooperation, trade, and offset in order to fulfill the needs of military weapons (weapon systems) and security equipment. However, for the development of this technology to be successful, it requires mutual attention;

First, there must be a definite plan from every user, both the Armed Forces/TNI and the Police, both support the cooperation program through direct purchases, trade offsets, and offsets. Because otherwise, there will be jealousy, and even tend to compete to buy imported goods that are considered more advanced and trending. Planning is a commitment, one of the indicators is the formation of a commission that will follow up every policy from the executive and the Ministry of Defense of the Republic of Indonesia, with a commitment to further

analyze the availability of human resources, raw materials, and seek funding for operations and production, apart from state sources, at least as did Saudi Arabia. Thus, it is hoped that these companies can focus on conducting joint assessments and developments with the Research and Development Ministry of Defense of the Republic of Indonesia in formulating various production and development plans.

Second, in conducting research and producing, the government must formulate and prioritize various policies on the transfer of defense technology by conducting simultaneous development of strategic companies so that they are able to produce various products, both real and newly designed. Special attention to the Defense industry is important because, with a limited market, it will be difficult for people to be interested in this industry, especially because it is full of regulations that are burdensome for the development of this industry. You can imagine that if you sell to a country, that country has to ask for permission again from its senate. Compared to the general industry, goods depend solely on market needs, so that only market tastes are concerned.

Third, always evaluate the implementation of this defense offset. The government must step in, through KKIP, it can evaluate the defense industry program, both private and state-owned so that there is a stimulus and regulation from the government that continues to encourage the growth of this defense industry. The practice of the defense offset mechanism in the procurement of defense equipment provides a perspective that the expected transfer of defense technology with the defense offset mechanism must be supported by the readiness of human resources, budgets, raw materials, and research and development institutions that will facilitate the technology transfer process, which will be able to meet the needs of defense. And the key to effective defense offset practices in various



government policies that facilitate the process.

If the government is able to properly plan, implement and evaluate the implementation of this defense offset, the government has taken a step forward in placing the ToT process through offsets at the strategic management level. However, if it is only a prerequisite for meeting the needs of the TNI, the ToT program is only a protector of supply chain management programs. It should also be learned that the Indonesian Ministry of Defense has not specifically regulated the issue of Copyright. For this reason, the Ministry of Defense needs to establish a Center for IPR (Intellectual Property Rights) in the Defense Industry Sector.

Another opportunity, as the 1945 Constitution amendments article 31. Paragraph 4 mandates to allocate education costs at least 20% of the national budget (APBN) and local budget so that the community can enjoy educational services. The linkage of the industry with an education in the triple helix is very important. The country's constitution has been running for twenty years, but the creation and production of knowledge have not shown significant results. If the results of patent grants are used as guidelines, in 2019, China will see 452,804 and USA 354,430 while Indonesia is only 10,514 (World Intellectual Property Organization, 2020). This means that knowledge production is realized whose patents are still insignificant compared to countries that have a defense industry. Even if this comparison is not the right way, it just shows that Indonesia, in general, is still lagging behind in technological innovation.

Conclusion

The goal of independence in defense industry innovation is the will of the people through democratic government. As a result, the structure of the boundaries between government and private ownership of the

defense industry is increasingly blurred because the military's needs quickly adapt to the development of the strategic environment while companies to meet domestic military needs cannot be monopolized by government-owned companies alone. Competition between private and government-owned companies is increasingly open, and the dominance of companies is getting stronger, and the legitimacy of the development of the defense industry demands more flexible government policies.

Demands for local content that must be met in meeting military needs can be overcome by cooperating with various government policies. Military needs must be met in various ways so that in carrying out the fulfillment of military needs, supply chain management is important in addition to adequate financing. Defense industry innovations are not only to meet the needs of the domestic military, but all innovations in the national industry, both government and private, must be ready to collaborate with any country's defense industry to dominate national, regional, and global markets.

The ability to innovate is determined by the ability of human resources, finance, facilities, markets in the development of technology in the defense sector is also influenced by foreign relations. Defense diplomacy instruments need to be considered in addition to purely defense industry development instruments. Cooperation with various parties is the key to success, especially academia, industry, and users (triple helix). Offset is a strategy to protect the user in utilizing the defense technology that has been purchased, which guarantees the transfer of ability in its use and maintenance. As a technical indicator of a country's strength, the Transfer of Technology (ToT) of defense will always be a political and economic consumption that is difficult to predict because state-of-the-art technology is a game-changer.



Acknowledgments; Researchers have no interest in the results of the study.

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