



# **Implementation of Trade-off, Local Component, and Offset Policy Pt. Pindad (Persero) in Supporting the Defense Economy**

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## **Authors' contributions**

*This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.*

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## **ABSTRACT**

The fundamental problems in economic development in Indonesia are the low level of welfare, unsustainable economic growth, and the inadequate development process of economic sectors. Defense Economics is a branch of science that applies economics to national defense issues. Defense economics as a multidisciplinary study discusses resource allocation, income distribution, economic growth, and political stability as applied to topics related to defense. One of the efforts of the Indonesian government in increasing the capability of the defense industry is to implement a trade-off, local component, and offset policy also known as IDKLO. The Indonesian government in carrying out this mechanism has formed a cooperation with various industrial bodies, locally and internationally such as PT. Pindad (Persero). In carrying out its duties, PT. Pindad (Persero) experienced several obstacles for instance the limitations on the company's high technology mastery in building defense equipment, the availability of funding, and inadequate human resources regarding technical and academic matters. The purpose of this study was to find out how the implementation of the IDKLO policy was carried out by PT. Pindad (Persero) in developing the defense industry. The data collection process is carried out through a literature review method on

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scientific articles, laws and regulations, as well as PT Pindad's (Persero) annual report related to the IDKLO for the procurement of defense equipment. The results show that the implementation of PT Pindad's (Persero) (IDKLO) is divided into 3 main activities, namely the Ministry of Defense contract with the principal, the principal contract with the defense industry, and the completion of the local component and offsets (KLO) contract. Several variables to support the implementation of PT Pindad's (Persero) IDKLO are the ability to communicate, its resources, the bureaucracy, and the disposition which could improve the capability of the defense industry of the Republic of Indonesia.

*Keywords: Policy implementation; defense industry; IDKLO Mechanism; PT. Pindad (Persero).*

## 1. INTRODUCTION

Indonesia's strategic territory does not only provide geopolitical advantages but also invites actual and potential threats. Based on Ministry of Defense Regulation KEP/104/M/I/2020 actual threats include military threats, non-military threats, and hybrid threats. Both of the threats harm the safety of the entire nation which has to be considered as the central concern for the defense sector to make decisions regarding the national defense strategy. The development of a national defense strategy must be aligned with the global security environment. The national defense of Indonesia also develops a strategic plan based on the empirical needs of the defense system regarding minimum essential force (MEF) fulfillment. It shows how the vision and mission of national development in sectoral defense align with inherent needs amidst changes in the strategic environment (Luthfiyanah, Jupriyanto, & Adjo, 2017) [1]. MEF is designed accordant with capability-based planning paradigm which formed in the process of dealing with dynamic and massive threats, whether carried out by state or non-state actors, to maintain the welfare and nation peace. MEF's target is developing Indonesian National Armed Forces (TNI) main weapon system equipment by analyzing types and product need assessment, prepare a budget, and planning procurement.

Based on Law no. 3 of 2002 article 1 paragraph 2, the state defense system is a universal defense system that involves all citizens, territories, and other national resources, and is prepared early by the government and carried out in a total, integrated, directed, and continue to enforce state sovereignty, territorial integrity, and the safety of the entire nation from all threats. The three main foundations of Indonesia's defense system to maintain national security are human resources (both military and non-military sector), the existence of an independent defense industry supported by the latest technology, and the capability of the

defense industry to compete in the international environment [2].

The non-military defense layer is composed of security functions for public safety which includes the handling of natural disasters, and other humanitarian operations in many aspects such as socio-culture, economics, defense psychology. It is related to the thinking of state defense awareness and technological development. National defense in facing non-military threats places ministries and institutions outside the field of defense as the main elements. Here it demands the main role of the ministries and institutions involved in supporting non-military defense, especially in the economic field [3].

The effort to develop Indonesia's military industrial-strength certainly focuses on increasing the capability of the defense industry. A national industry consisting of state-owned and private-owned enterprises which form either independently or in groups, determined by the government to partially or wholly produce defense and security equipment, and maintenance services to fulfill national strategic interests (Law no. 16 of 2012 article 1 paragraph 1). The defense industry is held with the aim of realizing a professional, effective, efficient, integrated, and innovative defense industry, as well as creating independence in the fulfillment of defense and security equipment, increasing the ability to produce equipment and maintenance services that will be used in order to build a reliable defense and security forces (Law no. 16 of 2012 article 3). An adequate defense and security equipment procurement management is necessary to fulfill the national mission. To increase the capability of the defense industry, the Indonesian government implements trade-off, local component, and offset policy mechanism. It aims to increase the independence and capability of the defense industry which is embodied in various industry bodies that have

been built by the government namely PT. Pindad (Persero).

PT. Pindad (Persero) focuses on production lines in various fields that continue to be developed, such as weapons, munitions, special vehicles, and explosives. The majority of PT. Pindad (Persero) contract acquisitions are in the munitions and special vehicle fields (Indriyanto, 2017) [4].

PT. Pindad (Persero) was founded in 1808 under the name *Conconstructie Winkel* (CW) by the Dutch Governor General William Herman Deandels in Surabaya. Deandels also established a large-caliber ammunition workshop, namely the *Projectiel Fabriek* (PF) and the Chemical Laboratory in Semarang. In 1850, the Dutch government set up a workshop for the manufacture, repair of ammunition, and explosives for the navy named *Pyrotechnische Werkplaats* (PW) in Surabaya [5].

On January 1, 1851, the name CW was changed to *Artillerie Constructie Winkel* (ACW). A decade later, ACW and PW merged to become ACW. In mid 1914, the ACW factory moved to Bandung due to World War I. In 1932, the PW factory moved to Bandung and merged with ACW. Four installations namely ACW, PF, Chemistry laboratory, and *Geweemarkerschool* were merged under *Artillerie Inrichtingen* (AI). Japan's position in Indonesia only tends to change the name or term of the Factory. However, on October 9, 1945, *Laskar Pemua Pejuang* succeeded in seizing ACW and naming it the *Pabrik Senjata Kiaracandong* (PSK). When the Dutch returned its power, PSK was divided into two factories. The first factory consisted of ACW, PF, and PW which were merged into *Leger Produktie Bedrijven* (LPB). The second factory, *Geweemarkerschool*, was converted into *Central Reparatie Werkplaats* (CRW) [5].

After the Dutch recognized Indonesian sovereignty on 27 December 1949, the Dutch handed over the assets of LPB to the Indonesian government. Then the Indonesian government changed the name of the LPB to the *Pabrik Senjata Mesiu* (PSM) which was managed by the Indonesian National Army (TNI-AD) [5].

On December 1, 1958, PSM changed its name to the *Pabrik Alat Peralatan Angkatan Darat* (Pabal AD). In 1962, Pabal AD was changed to *Perindustrian TNI Angkatan Darat* (Pindad). In 1972, Pindad had changed its name to Kopindad

(Army Industrial Command), but returned to Pindad on April 28, 1976. On February 11, 1983, in accordance with Indonesian Government Regulation No. 4 of 1983, Pindad officially became a state-owned enterprise [5].

Compared with other companies such as IPTN and PT. PAL, PT. Pindad (Persero) is working on a variety of products as part of the defense offset mechanism. In this modern era, PT. Pindad (Persero) is one of the central companies in the development of the Indonesian defense industry [6].

Despite its duties to develop the defense industry, PT. Pindad (Persero) has several obstacles. These constraints arise with the limitations on the mastery of technology in building main equipment and defense system which happens due to several problems. First, PT. Pindad (Persero) has limitations in ownership of advanced technology. They have outdated technology which affects the production's capacity. Second, regarding the availability of funding which still relies on bank financing. The number of operational costs causes a problem because the materials, components, and production facilities depend on imports. Third, inadequate human resources especially in technical and research affect the company's ability to develop. Fourth, the existing formal business process or system support in PT Pindad (Persero) is no longer adequate to handle current business conditions [4].

Nonetheless, PT. Pindad (Persero) has great potential in developing the defense industry to build an independent defense industry, especially in the procurement of Indonesia's defense and security equipment and main weapon system equipment. Regarding IDKLO policy implementation, PT. Pindad (Persero) has become the main subject in providing various weapons, equipment, and various other defense needs for the advancement of the Indonesian defense industry. As a part of the strategic defense industry, PT. Pindad (Persero) can fulfill nation security needs and affect the national economy. Security stability, strategic industrial growth, and macroeconomic stability simultaneously influence economic growth (Saputro) [7]. Partially, macroeconomic stability is more influenced by the significant positive effect of strategic industry growth than security stability. Increasing the growth of strategic industries supported by the role of more effective security stability, by taking into account the

linkages between the two, has the ability to improve macroeconomic stability [8]. PT. Pindad (Persero) started the export activity in 2006 when it started exporting assault rifles to Cambodia and Nigeria, Malaysia and Australia for riot control, ammunition shipments to South Korea, Singapore, Timor Leste, and the Philippines. The ambitious plan to distribute Medium Tank products is expected to enter the international market in 2023. Export activities are a form of commitment to present a state-owner enterprise globally that brings in foreign exchange and multiplier economic effects, such as empowering local suppliers and absorbing labor [9].

## 2. THEORETICAL FRAMEWORK

### 2.1 Policy Implementation

The concept of implementation is increasingly being discussed along with many experts who contribute ideas about policy implementation as one of the stages of the policy process. Some authors place the policy implementation stage in a different position, but in principle, every public policy is always followed up with policy implementation [10]. Policy implementation is an activity that is seen after the issuance of a valid direction from a policy which includes efforts to manage inputs to produce outputs for the community. The implementation process begins when the goals and objectives have been set, the program's activity has been structured, and the funds are ready and distributed to achieve the targets. According to Van Meter and Van Horn, the process of policy implementation which is directed at the locus and focus (change) is an action taken by the government and private organizations, both individually and in groups intended to achieve goals [11].

Policy implementation as a concept can be divided into two parts, namely implementation seen in terms of its similarity to the function of intent, output and outcome [12]. The implementation formula is a function consisting of the intent and purpose, the result as a product and effect. Furthermore, implementation is a functional equation of policy, formator, implementer, initiator, and time. Van Meter and Van Horn further explained that the role of policy implementation is to build a network that allows public policy objectives to be realized through the activities of government agencies involving various interested parties. Implementation is a general process of administrative action that can be investigated at a particular program level [13].

Eugene Bardach conceptually presented the policy implementation process as a socio-political phenomenon [14] or commonly called the political game as well as the first era of policy implementation studies [12].

Implementation is considered the main form and a very decisive stage in the policy process. This view is corroborated by the statement that without effective implementation, policy makers' decisions will not be successfully implemented. There are four important variables that must be considered to see the various factors on the failure and success of public policy implementation, namely: communication factors, resources, bureaucratic structure, and attitude or disposition of implementers [14].

### 2.2 The Trade-Off, Local Component and Offset Policy Implementation

Many international countries see the offset policy as a way to increase the country's ability to build a strong and independent defense industry which could raise the nation's profile in international political contests. Offset policy can help the national defense independence because offset requires transfer of technology and reciprocity, to joint production with major manufacturers of world defense and security equipment. Another reason to choose the defense offset mechanism is that the production capacity of the weapon-producing country is excessive, so the pattern that is built to sell its production is the transfer of technology in the form of mutually beneficial cooperation between countries or weapon-producing companies and weapon-consuming countries.

Referring to the description above, the definition of defense offset is basically a reciprocal purchase or investment process that is agreed upon by the manufacturer or supplier of weapons in return for an agreement to purchase military goods and services. There are two types of offset, namely direct offset and indirect offset [5].

Direct offsets are defined as goods or services that are directly related to the military equipment being sold. Direct offset consists of 3 forms. First, the purchase of a production license which means that the arms manufacturing industry agrees to transfer its technology to the buying country. Second, joint production (co-production). Buyers and sellers not only seek to procure military goods, but also sellers together with buyers seek to make goods and services of

military equipment, and market them together by observing the various agreements of the contract. Third, joint development (co-development). In joint development, armament-producing countries with buying countries seek to develop various defense equipment that has been produced by the selling country, with the hope that a better product will be obtained than the previous product. The advantage of co-development is that the buying country actively adopts and transfers various weapons technologies directly or indirectly so that the increase in human resource capabilities in the buying country can be measured gradually and properly [5].

Indirect offset is defined as goods and services that are not directly related to purchases of military products but are attached as an agreement in the process of buying and selling military and defense equipment. There are at least four types of indirect offsets. First, barter, a process of buying and selling by two countries or producers and consumers of weapons and accompanied by an agreement that the seller of the defense equipment is willing to pay for the non-military products of the buying country with nominally equivalent to the price of defense equipment.

Second, counter purchase, in which weapons suppliers agree to buy non-military products or find buyers for these non-military products with an agreed nominal value of the price of weapons supplied. Third, counter-investment, in which weapons suppliers agree to be involved or find a third party willing to invest directly in the buyer's country with a certain value from the buying and selling process. The form of return on investment can be in the form of the establishment of factories, transfer of non-military technology, and so on. Fourth, buyback, the process is similar to return on investment, the only difference is that weapons suppliers agree to buy back or find a third party to buy military products that sell them for a certain period of time.

Minister of Defense Rule No. 74 of 2014 concerning the Countertrade Mechanism in the Procurement of Defense and Security Equipment from Abroad explains that the objectives of procuring defense and security equipment from abroad through the mechanism of trade-off, local component, and offset policy are:

- a. creating the independence of the national defense and security equipment;

- b. realizing the independence of the domestic defense industry;
- c. realizing the domestic defense industry as a mode for development and transfer of technology as well as national economic growth;
- d. realizing mastery of technology that can be used to improve the capabilities of the defense industry and national industry;
- e. build competitiveness and encourage the participation of the national defense industry in the global industrial chain; and
- f. increase the absorption of manpower and the development of human resources that have strategic functions.

### 2.3 Determinants of Successful Implementation According to Edward III

According to Edward, there are four factors that also influence the execution of policy implementation. These factors are in the form of communication factors, implementation resources, bureaucratic structure, and attitude or disposition of implementers [15].

**Communication Factor:** The first requirement for effective implementation is communication as a process of delivering messages from communicators to communicants. In the context of policy implementation, the communication in question is about information from the policy itself. Some of the important dimensions of communication include the transmission dimension, the clarity dimension, and the consistency dimension.

**Resource Factor:** Resources refers to capital in the procurement of policies that include human resources, budgetary resources, as well as equipment resources and authority such as human resources, budget resources, equipment resources, and authority resources.

**Disposition:** Disposition shows the willingness of policy actors to achieve policy goals. Implementers not only have knowledge of what will be done in implementing policies, but also need serious will. Disposition in policy implementation is also influenced by the appointment of a bureaucracy that should choose dedicated people and incentives from policy implementers.

**Bureaucratic structure:** The bureaucratic structure shows the efficiency of policy implementation that departs from the division of

authority and relationships between organizational units. SOPs or operationalization standards and fragmentation, aka the distribution of responsibilities, are important, especially in relation to internal developments in time management, resources, and the work organization mechanism itself. Harmonization of relationships within the organization becomes important.

### 3. METHODOLOGY

This research was carried out through a literature review. Snyder explained that through the literature review methodology we can get an explanation in the process of investigating the influence or relationship between two or more specific or widespread variables. A literature review can be used in the researcher's goal to obtain an explanation of the issue or research problem formulation. A literature review with the case study is the main methodology of research on the process of implementing trade-off, local component, and offset policy (IDKLO) by PT. Pindad (Persero). The author carried out this research by doing an in-depth reading of various writings about the IDKLO implementation process and also various publications regarding IDKLO activities carried out by PT. Pindad (Persero) in the development of the Indonesian defense industry. Through this methodology, the author is able to establish relationship between various factors involved in implementation of various processes and has explained the issue of implementation of these factors in supporting the Indonesian Defense economy.

### 4. DISCUSSION

#### 4.1 IDKLO Implementation by PT. Pindad (Persero)

Initially, trade-off, local component, and offset policy (IDKLO) has been running since the 1960s, but has begun to experience significant development and progress through PT. Pindad (Persero), IPTN and PT. PAL in cooperation with weapons producing countries and strategic industries in the 1970s [5]. The offset policy implemented by PT. Pindad (Persero) is closely related to the development of defense technology. IDKLO Policy by PT. Pindad is one form of effort to develop the independence of Indonesia's defense.

Law No. 16 of 2012 concerning the Defense Industry Explains the interests and obligations of

using the main equipment and weapon systems of domestic production. The law also encourages the transfer and development of technology as well as funding in the form of offsets and trade offsets for products of defense and security equipment imported from abroad. PT. Pindad (Persero) is similar to other strategic Indonesian companies running the offset mechanism in several stages, namely: Pre-Implementation, Implementation, and Post-Implementation.

The pre-implementation stage consists of five activities, namely local content and/or offset (KLO) requirements, determination of KLO activities, determination of multipliers, communication between KLO stakeholders, and determination of KLO values. In order for KLO to be applied, the procurement of main equipment and weapon systems is a procurement from abroad and there is an analysis of the applicability of the KLO.

The implementation stage is divided into 3 main activities, namely the Ministry of Defense contract with the principal, the principal contract with the defense industry, and the completion of the KLO contract. The post-implementation stage is the last stage and is the expected long-term effect in the offset procurement process. In terms of technology, defense offsets are expected to create new products, increase knowledge and expertise, improve methods, facilities, tools, certification, and so on [2].

#### 4.2 Factors Influencing IDKLO Implementation PT. Pindad (Persero)

There are four important variables that must be considered to see the various factors on the failure and success of policy implementation, namely: communication factors, implementation resources, bureaucratic structure, and attitude or disposition of implementers [14].

**Communication factor:** The important key in communication consists of the transition dimension which shows that the message is also conveyed to other parties outside the interested parties, then the clarity dimension which has implications for the meaning of the message so that it can be conveyed and carried out effectively, and the consistency dimension which avoids confusing information.

PT. Pindad (Persero) can be seen from its ability to collaborate with its partners. Several forms of cooperation carried out by PT. Pindad (Persero)

regarding cooperation on defense offset mechanisms.

According to the Bisnis news page [16], the form of communication shown by the government was the Deputy Minister of Defense M. Herindra asked PT. Pindad (Persero) to develop products so that the defense industry can compete with products from abroad. Parties involved in encouraging this sector have an important role in the global market, so there needs to be further communication in forming regulations related to the production of the defense industry. The government also provides protection for business expansion and increased production capacity of the defense industry. The Ministry of Industry's encouragement to optimize countertrade, local content and/or offset (IDKLO) policies for the development of upstream industry capabilities in supplying the needs of the defense industry can support PT. Pindad (Persero) in developing an independent defense industry. The communication factor is also related to other factors, including the bureaucratic factor.

According to Detik news page, similar order also came from the Deputy Minister of Defense (2019) namely Saktu Wahyu Trenggono. He encourages the cooperation of PT Pindad and Partica (*pembuat kendaraan tempur*) from Ukraine to become a serious production to compete globally as a part of the Indonesia's President Vision in building independent defense equipment.

**Resource factor:** The independence of the defense industry begins with an offset policy as a form of countertrade, which is shown by one of the capabilities of resources. The resources referred to in the implementation of countertrade, local content and/or offset (IDKLO) PT. Pindad (Persero) is staff, information, authority, and facilities.

PT. Pindad (Persero) requires the development of its products to adapt to the operational needs of the Indonesian National Army (TNI-AD) with the latest technology. The development of increasingly advanced technology encourages PT. Pindad (Persero) to stand as an independent National Defense Industry through an offset policy. The embodiment of the technology development of PT. Pindad (Persero) cannot be separated from its fundamental resources, namely human resources (HR) that are adaptive and have in-depth research on the development of defense technology [17].

One of the important stages is the maintenance of defense equipment, but unfortunately in Indonesia, the maintenance of weapons system equipment with technological requirements is an obstacle in the field of procurement. Another big obstacle is the realization of concrete efforts in technology transfer so that defense equipment cannot be used optimally. This shows that technology-driven resources are important in the defense industry [17].

According to the Bisnis news page [16], the Ministry of Industry noted that PT. Pindad's (Persero) Defense and Security Equipment (Alpalhankam) products that meet the Domestic Component Level (TKDN) certification are light weapons such as machine guns of 5.56-7.62 mm caliber that use 87.71-91.12% local components. Other light weapons are 7.62 mm-388 inches caliber sniper rifles, 38 mm caliber anti-riot rifles, and 60-81 mm caliber mortars. The production of MV2 4x4 tactical vehicles is expected to penetrate the ASEAN defense industry market as well as to meet the needs of modern operations. This shows how resources can determine the offset implementation.

PT. Pindad (Persero) plans the readiness of human resources who excel in developing technology to create innovation and respond to global market opportunities. The basis for HR planning is based on Article 29 of Law no. 16 of 2021. Referring to Article 48 of Law no. 16 of 2012, PT Pindad (Persero) must be committed and consistent in investing in technology. According to Kompas news, the recruitment of human resource of PT. Pindad (Persero) is carried out by registering a BUMN (state-owner enterprise) test which is usually announced through the official website. The four formations of the job vacancies are security, operator, drafter, and driver with a minimum education of Vocational High School graduates[18]

**Disposition factor:** Indonesia basically needs the government's commitment to fund the development of the defense industry. The offset mechanism and the development of defense technology encourage the independence of the defense industry. The attitude of the implementer that is important in supporting the implementation of offsets is commitment. The disposition factor shows the embodiment of commitment because it relates to the compliance of the implementers in implementing the policies that have been set. Disposition is the willingness, desire, and

tendency of policy actors to carry out policies seriously. Disposition in policy implementation depends on the factors of bureaucratic appointments and incentives.

Companies, including those in the defense industry, are increasingly facing the Techno-Business Environment in the future. The digital era encourages the defense industry to also develop in terms of technology in order to be competitive and superior in the business environment. The embodiment in terms of technological development appears in technological convergence. This shows that there is an effort to combine traditional technologies with new ones that can open up other opportunities for convergence development. The Defense Industry in Indonesia in the field of technology includes the design process, materials, equipment and machinery, testing and maintenance, building design, and information systems [19].

The technology developed is technology that can contribute profits to the company. Based on the main priority strategy for technology leadership from the Ministry of SOEs for the Defense Industry Cluster in the Defense Cluster Masterplan 2020, PT. Pindad (Persero) as one of the Defense Industry Clusters is committed to developing and institutionalizing technology/digital capabilities on a general scale, creating value from big data, artificial intelligence, and supporting Indonesia to be at the forefront of strategic technology areas [19].

PT. Pindad (Persero) in the government's priority program manages the APC Medium Tank, Recovery Medium Tank, and the R-Han 122B Rocket as a form of technological convergence. PT. Pindad (Persero) involved PT Len Industri, PT Inti, and PT Inuki, PT Dirgantara Indonesia, PT Dahana, and LAPAN. Collaborative efforts drive cost strategies and process technology changes so that they can become investment targets. The form of technology leadership and technology patenting strategies are needed to make decisions based on leadership endurance factors, the advantages of first-actors, and disadvantages as first-actors [19].

**Bureaucratic structure factor:** The bureaucratic structure factor is related to the division of labor, authority, and responsibility, which will affect the achievement of policy objectives. To make it happen, the policies that have been set must be implemented as well as

possible. PT. Pindad (Persero) has a role in the priority of modernization of Main Equipment and Weapons Systems which is carried out by empowering the State-owned Corporation of The Strategic Industries (BUMNIS) as the first step towards the independence of defense equipment which is in line with the MEF fulfillment plan. To support this, PT. Pindad (Persero) has a bureaucratic structure consisting of directors, directors and committees, to the ranks of staff, each of which has duties and responsibilities in accordance with their portion.

The bureaucratic structure at PT. Pindad (Persero) can be arranged to support the findings of research and development results which should be followed up to the production stage even though it requires large funds. This is related to import cooperation in the Defense Industry sector, which is usually an option because it is cheaper but can cause dependence. Imported defense equipment does not necessarily meet the needs of users in Indonesia because the country that manufactures the defense equipment has a different geographical location from Indonesia. Thus, it encourages the bureaucracy in PT. Pindad (Persero) ranging from military officials, industry experts, to defense technology experts to work together in order to build high-tech and independent defense equipment through the implementation of offset policies.

As the embodiment of the bureaucracy, institutions can support the development of defense equipment with the support of a strong commitment from the government. One form of institutional cooperation as well as the embodiment of the bureaucratic structure in PT. Pindad (Persero) is the result of a meeting with KKIP (*Komite Kebijakan Industri Pertahanan* or Defence Industry Policy Committee).

According to the official website of PT. Pindad (Persero) (2021) [19], the Director of Technology and Development of PT. Pindad (Persero) received a visit from the Head of the KKIP Headquarters, TNI Admiral (Ret.) Darwanto, and other KKIP officials at the Pindad Headquarters, Bandung. The form of the visit can be a meeting to facilitate bureaucracy as well as communication, for example related to studying national program activities on Medium Tanks and Munitions products. The two products will be used as a policy reference for the development of the defense industry. KKIP's visit is a form of

follow-up related to the development of the defense industry and policy implementation.

The meeting that connects the bureaucracy as well as a form of stakeholders carried out by discussion becomes important in PT. Pindad's (Persero) development of the defense industry. All bureaucracies need a similar paradigm which manifested in their vision to aligned themselves with the goals of national economic development such as growing a trade industry. It shows the collective commitment to build the national economy together within every stakeholder.

The legal umbrella is also important to set regulations related to the PT. Pindad (Persero) with KKIP.

### **4.3 The role of PT. Pindad (Persero) in Improving the Defense Industry**

Through the defense offset mechanism, PT. Pindad (Persero) cooperates with foreign industries in the acquisition of technology. Even so, Muradi explained that PT. Pindad (Persero) initially became an Indonesian strategic company that carried out production cooperation as part of the least defense offset, compared to IPTN and PT. PAL [5].

While the offset mechanism is also carried out by PT. Pindad (Persero) outside of defense, such as the purchase of a generator license from Siemens, Germany. In 2004, PT. Pindad (Persero) also cooperates with Hyundai Motor to develop Armored Vehicles in the form of joint production [5]. Even so, PT. Pindad (Persero) continuously develops itself as a defense industry that is ready to support the task of increasing the independence of the Indonesian defense system. This is realized by the ability of PT. Pindad (Persero) which is capable of producing at least 80 units of armored vehicles per year.

Apart from that, PT. Pindad became the lead integrator in collaboration with PT. Lundin Invest, PT Len Industri (Persero), and PT Hariff in the Antasena Tank Boat project. The Tank Boat can carry 60 personnel and 5 crew members, has a maximum speed of 40 knots and a cruising range of up to 600 Nautical miles [19].

Through the defense offset mechanism, PT. Pindad (Persero) also plays a role in the procurement of the Caesar 155 Cannon Main Equipment and Weapon Systems (Alutsista). The

Caesar 155 cannon is the result of a collaboration between PT. Pindad (Persero) with Nexter System France. The CAESAR cannon includes the Armed GS (Self-Movement) cannon and can operate in a wide range of terrain. Since 2015, this cannon has been operationalized in Yonarmed 9/2/1 Kostrad Purwakarta and Yonarmed 12/1/2 Kostrad units in Ngawi [20-21].

Comparison of CAESAR in international realms as a self-propelled howitzer, for example, to those produced by the French army namely the CAESAR 6x6 since 2008. The major asset of CAESAR is the mobility which can be airlifted and easily deployed to any operations. The CAESAR is available in two versions, a 6-wheel drive version (6x6) and an 8-wheel drive version (8x8). The latter addresses the demand for a heavier armament system with a longer range in some countries [22].

With a weight of about 18 tons, the CAESAR cannon is capable of changing positions rapidly. This cannon is capable to set in 51 seconds and unloading in 36 seconds, moving at speeds of up to 80 km/h on flat terrain and has a cruising range in all terrains (off road) of up to 600 km without refueling fuel. Furthermore, this cannon can pass through water fields with a depth of up to 1.2 M. The CAESAR cannon's firing capability reaches more than 40 KM with a firing speed of 6 rounds per minute.

Policy Implementation through IDKLO by PT. Pindad (Persero) provides supplies of Indonesian equipment and weapons. Furthermore, the IDKLO policy has strengthened the Indonesian defense industry.

## **5. CONCLUSION**

The conclusion from the results of this study indicates that there are several factors that influence PT. Pindad's (Persero) mechanism of IDKLO in carrying out the growth and development of the Indonesian Defense Industry. Factors influencing PT. Pindad's (Persero) implementation of IDKLO based on Edward III (1984) [14] consists of four things, namely communication, resources, bureaucratic structure, and disposition. In terms of communication as a form of achieving messages to institutions and internally, it is marked by forms of cooperation or partners. Starting from 1983 when he first bought a license abroad to the encouragement of the Deputy Minister of Defense to PT. Pindad (Persero) to develop

products, especially in terms of technology to compete globally. In terms of resources, it covers various aspects such as human resources, budget, equipment, to authority. Resources owned by PT. Pindad (Persero) requires the ability to understand the latest technology, especially in terms of research so that production development for offset implementation can run forward. Likewise with the presence of a budget supported by the government and the ability of superior human resources to innovate. In terms of disposition, PT. Pindad (Persero) shows a commitment to building an independent defense industry through the implementation of offsets as a form of adaptation to changes in the digital era and technological advances. In terms of bureaucratic structure, the emphasis on support in the R&D to procurement is realized by implementing the organizational structure of PT. Pindad (Persero) in accordance with their respective duties and authorities. Bureaucratic relations with internal parties are also important, for example cooperation with KKIP which is wrapped with a shared commitment.

The embodiment of PT. Pindad (Persero) through the procurement of various Main Equipment and Weapon Systems (Alutsista), and Defense and Security Equipment (Alpalkankam) such as Tank Boats, CAESAR 155 cannons, and several medium tanks which categorized as armor vehicles from the government's priority program shows the form of implementing offset policies that encourage the independence of the Indonesian defense industry. Although it cannot be separated from company obstacles such as in the field of fulfilling quality resources and bureaucratic synergy in achieving common goals, PT. Pindad (Persero) has great potential in supporting the procurement needs of the Republic of Indonesia and PT. Pindad (Persero) can stand as a stronger and more independent defense industry.

## SUGGESTION

In terms of budget, the government can provide more support to PT. Pindad (Persero) to maximize the research and development section to the procurement stage. Through the bureaucracy that is run based on a shared commitment to building an independent defense industry, there needs to be a serious follow-up in terms of research and also comparisons with other industries because it is very influential, especially in the point of developing the latest technology as a sign of the implementation of

offset PT. Pindad (Persero). The commitment to build independent defense industry is shown through the export activity which held since 2006. It aimed to bring this state-owner enterprise globally into foreign exchange and multiplier economic effects such as empowerment of local suppliers and employment.

## DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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