STRATEGIC ADVANTAGE OF STATE-OWNED ENTERPRISES (SOEs) DEVELOPMENT POLICIES IN STRENGTHENING NAVAL ARMAMENTS

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In an increasingly complex and dynamic era, the capabilities of naval armaments become crucial aspects in ensuring a country's maritime sovereignty. State-owned Enterprises (SOEs) have significant potential to act as drivers in strengthening the capabilities of naval armaments. This paper aims to delve deeper into the role and contribution of SOEs in the development of the defense industry, particularly in the context of strengthening the capabilities of naval armaments. This approach includes conceptual analysis and case studies that allow researchers to explore various aspects of policies and practices related to SOE development in the defense industry. The experts were interviewed with a total of 12 expert panels. Several important findings resulting from this analysis reinforce awareness of the crucial role of SOEs in supporting maritime defense while highlighting the potential of specific strategies in achieving the goals of strengthening naval armaments, such as Variation of Strategies Adopted by SOEs in Developing the Defense Industry, consists of Product Diversification and Technological Innovation; Collaboration with Strategic Partners; Operational Efficiency Improvement. Besides that, the success of SOE development policies in the defense industry encompasses coordinated inter-agency cooperation, investment in research and development (R&D), and supportive regulations. Further improvement and development steps in the maritime defense industry include enhancing synergy with the government through the establishment of special teams and discussion forums, boosting R&D investment through fiscal incentive programs and the establishment of innovation centers, as well as improving responsive regulations through the formation of regulatory committees and independent audits.

Key Words: *Naval Armaments, SOEs, Defense Industry, Development Policies, Strategic Advantage.*

1. INTRODUCTION

In the current global dynamics, maritime sovereignty has become a primary focus for many countries with extensive maritime territories or high economic dependency on the maritime sector (Strating and Wallis, 2022). The era of globalization brings new challenges, including the

increasing complexity of security in the oceans (Mendenhall, 2020). Amidst these challenges, the capabilities of naval armaments stand as one of the main pillars in safeguarding a nation's maritime sovereignty (Atlan, 2023). Reliable and high-quality naval armaments are key to ensuring the security and sustainability of maritime activities (Pudjiastuti, Putra and Susilo, 2021).

With the development of technology and rapidly evolving threats, the need for effective and adaptive naval armaments is increasingly pressing. In this context, the role of State-Owned Enterprises (SOEs) in the development of the defense industry becomes highly relevant (Garcia Herrero, 2019). SOEs have significant potential to act as drivers in strengthening the capabilities of naval armaments. By having greater control over the production process and technology development in the defense industry, SOEs can be more flexible in adapting to the defense needs of the country. Additionally, SOEs can also serve as catalysts for technology transfer and enhancing self-reliance in the production of naval armaments (Castelnovo, 2022).

With this background, this paper aims to delve deeper into the role and contribution of SOEs in the development of the defense industry, particularly in the context of strengthening the capabilities of naval armaments. Through in-depth analysis, this article seeks to provide a more comprehensive insight into the importance of SOEs in maintaining a nation's maritime sovereignty in an era of globalization filled with challenges.

This study has several contributions, theoretically this study enriches the literature on innovation and technology in industrial conservation, especially in the maritime sector (Farras *et al.*, 2024). This study also provides a framework for understanding the relationship between collaboration strategies, technology transfer, and defense capability enhancement. This study contributes to the literature on the internationalization of state-owned enterprises (SOEs) by showing how home-country policy strategies can impact the enhancement of local military strategic power. This study is expected to provide in-depth insights into the strategy of the role of state-owned enterprises in the national defense industry and offer solutions to improve the quality and effectiveness of naval weapons through innovation and technology. In addition, through this thematic process analysis, this study is expected to provide in-depth insights into how state-owned enterprises contribute to the development of naval weapons through innovation

and technology, as well as the factors that influence their success in this sector. This study also contributes to economic conservation by highlighting the economic factors that influence innovation in industrial conservation. This study can inform theories about how economic conditions, government policies, and market dynamics affect the ability of SOEs to innovate and contribute to national security.

2. MATERIAL AND METHODOLOGY

2.1. State-Own Enterprise (SOE)

The historical role of state-owned enterprises in today's advanced market economies has often revolved around exploiting their monopoly power, whether natural or created by state licensing, to raise state revenues. However, an equally important role has been the promotion of industrial development. In the context of developing economies, where capital markets are not always fully developed, and the ability or willingness of private entrepreneurs to take risks is considered adequate for national needs, state-owned enterprises may have a further key role in galvanizing domestic manufacturing activity, providing infrastructure services, or winning and channeling foreign economic aid that donors would rather not see enriching private owners (Lawson, 1994). State-owned enterprises are companies that have a significant presence in a country because many operate in core economic sectors and provide basic goods and services (Baum et al., 2020). Given the important role of SOEs and their subsidiaries in the Indonesian economy, SOE resilience is very important. Resilience is a long-term strategic effort that significantly affects how an organization operates (Lisdiono et al., 2022).

The nature of state-owned enterprises is exceptional. There is no context regarding the economic rationality of SOEs. Of course, public authorities can and do support the creation of knowledge through universities and public research centers; however, to the diffusion and valorization of commercial technologies, companies emerge to handle the coordination and coordination related to the use of market mechanisms and the allocation of resources (Dragomir, Dumitru and Feleagă, 2021). The relationship between SOEs and the government is undergoing a process of corporatization. Initially, they are servants of the state, adopting the same organizational goals. Later, they gradually develop their internal competencies and ensure their financial desires, loosening their ties with the government. With the

decline of government control, SOEs acquire entrepreneurial autonomy. The renewed tendency to achieve market goals is particularly relevant in the middle management of SOEs (Landoni, 2020).

2.2. Method

This research adopts a structured and holistic approach to understand (Awuzie et al., 2021) the impact of SOE development policies on strengthening naval armaments. This approach includes conceptual analysis and case studies that allow researchers to explore various aspects of policies and practices related to SOE development in the defense industry.

First, conceptual analysis is used to identify relevant conceptual frameworks for understanding the role of SOEs in strengthening naval armaments. This approach involves a careful review of literature on key concepts such as maritime sovereignty, defense industry, and the role of SOEs in national economic development. Next, case studies are selected to provide a deeper insight into the implementation of SOE development policies in practice. These case studies involve the analysis of several SOEs in the defense industry that have implemented relevant development policies for strengthening naval armaments. Data and information required for these case studies are obtained from various sources, including official documentation, company annual reports, and information from relevant stakeholders.

Furthermore, interviews with related experts were conducted to gain deeper insights and perspectives on issues related to BUMN development policies in the defense industry. The experts interviewed may include government officials, academics, industry practitioners, and other stakeholders who have relevant knowledge and experience with a total of 12 expert panels.

Table 1 Demographic information of the experts.

Expert	Field	Position
E1; E2; E3	PhD in Maritime Industries	Academic and Professional
E4; E5; E6; E7	Master in Naval	Academic and Professional
E8; E9; E10	PhD Student in Maritime Management	Academic
E11; E12	Master in Defense industries	Professional

By combining conceptual analysis, case studies, and interviews with experts, this research aims to provide a comprehensive understanding of the impact of SOE

development policies on strengthening naval armaments. The findings of this research are expected to contribute valuable insights into formulating more effective and strategic policies in optimizing the role of SOEs in supporting the naval defense of the country.

3. RESULTS AND DISCUSSION

The analysis of SOE development strategies in the defense industry is the main focus of this research due to its crucial influence on shaping a country's defense capabilities, particularly in strengthening naval armaments. Through a deep understanding of the strategies adopted by SOEs, this research aims to identify the extent to which these development policies can positively impact the enhancement of naval armament capabilities. Several important findings resulting from this analysis reinforce awareness of the crucial role of SOEs in supporting maritime defense while highlighting the potential of specific strategies in achieving the goals of strengthening naval armaments. Thus, a profound understanding of SOE development strategies becomes the foundation for stakeholders in formulating more effective and purposeful policies to support national maritime defense.

3.1. State-owned enterprise development policy strategy in increasing naval weapons capabilities

3.1.1. Variation of Strategies Adopted by SOEs in Developing the Defense Industry

SOEs in the defense industry have adopted a product diversification approach with a focus on developing various types and functions of warships and producing advanced naval weapon systems, such as anti-ship missiles and naval guns, while continuously innovating in sensing and communication technology. They also strengthen strategic partnerships with domestic defense industries to develop local technology and engage in international cooperation in joint warship construction projects, while enhancing operational efficiency through the application of Industry 4.0, IoT, and lean and Six Sigma management (Gutierrez-Gutierrez and Antony, 2020) methods.

3.1.1.1. Product Diversification

Development of policy strategies in the defense industry includes easing various social obligations and restructuring ownership, which allows for ownership diversification (Ervits, 2023). The law governing state-owned enterprises states several industrial policy objectives, including infrastructure

modernization, economic diversification and the creation of large integrated vertical structures to gain competitive advantage in international competition (Kowalski et al., 2013). Instead, rely on self-financing through various means such as increasing integration, diversification, through reinvestment of profits and tariff income to cover asset depreciation costs (Le, Park and Castillejos-petalcorin, 2023).

Development of warships with various types and functions, such as aircraft carriers, destroyers, submarines, and patrol vessels: In the product diversification strategy, SOEs in the defense industry focus on developing a diverse range of warships in types and functions. They develop aircraft carriers with long-range power projection capabilities, robust destroyers to face enemy threats in open waters, submarines capable of operating undetected below the sea surface, and patrol vessels ensuring security in national waters, providing a comprehensive overview of Indonesia's naval strength.

Production of naval weapon systems including anti-ship missiles, naval guns, and shipborne air defense systems: Additionally, SOEs also focus on producing advanced naval weapon systems to be installed on these warships. They produce anti-ship missiles capable of launching long-range attacks against enemy vessels, naval guns providing medium-range fire support, and shipborne air defense systems effective in countering air threats, providing solid defense capabilities for Indonesian warships.

Innovation in sensing, communication, and navigation technology to enhance naval armament performance: Furthermore, in support of naval armament performance, SOEs innovate in sensing, communication, and navigation technology. They continue to develop more sophisticated sensors and sensing equipment to detect and track enemy targets with high accuracy, reliable communication systems to ensure efficient coordination between ships and other defense units, and state-of-the-art navigation technology to ensure the mobility and operational precision of these warships in various maritime environments.

3.1.1.2. Collaboration with Strategic Partners

Collaboration with domestic defense industries to develop local technology that can be integrated into naval armaments: Collaboration with domestic defense industries is a significant milestone in SOE strategies. Collaboration among different partners offers greater knowledge about new technology development (Landoni, 2020). Through this collaboration, SOEs

can leverage local expertise and resources to develop technology that meets naval armament needs. The exchange of knowledge between SOEs and domestic defense industries opens opportunities for greater innovation, which in turn can enhance Indonesia's defense industry competitiveness overall. Among other considerations, this collaboration allowed the partners to share the financial risk of investing in countries that had only recently become market economies (Cheung, Aalto and Nevalainen, 2020).

Partnerships with international companies to transfer advanced technology and expand global market reach: Partnerships with international companies are a strategic step for SOEs to access advanced technology and expand global market reach. By establishing these partnerships, SOEs can transfer the latest technology into the Indonesian defense industry, enhancing production capabilities and innovation. Additionally, access to global markets through these partnerships opens opportunities for business expansion and increased exposure of Indonesian defense products internationally.

Signing cooperation agreements with navies of partner countries for joint warship construction projects: Signing cooperation agreements with navies of partner countries is a concrete step for SOEs in strengthening bilateral relations and building joint projects in warship construction. Through this cooperation, SOEs can share knowledge, technology, and resources with international partners, which not only strengthens the national defense industry but also enhances defense cooperation between countries. Thus, signing these cooperation agreements has positive economic, political, and strategic implications for Indonesia.

3.1.1.3. Operational Efficiency Improvement

Implementation of Industry 4.0-based manufacturing systems to enhance automation and production efficiency: In the operational efficiency improvement strategy, SOEs in the defense industry take concrete steps to improve their production processes (Castelnovo, 2022). Firstly, they adopt Industry 4.0-based manufacturing systems, implementing advanced automation and data integration to enhance overall production efficiency. With this system, SOEs can reduce production time, improve responsiveness to market changes, and optimize resource utilization.

Utilization of IoT (Internet of Things) technology to monitor and optimize the performance of machinery and systems on warships: SOEs leverage Internet of Things (IoT) technology to monitor and

optimize the performance of machinery and systems on warships. Through the use of sensors and connected devices, they can monitor operational conditions in real-time, enabling them to perform preventive maintenance and reduce machine downtime. This helps improve the performance and durability of warships, as well as save long-term maintenance costs.

Application of lean and Six Sigma management methods to identify and reduce waste in production processes: SOEs implement lean and Six Sigma management methods to identify and reduce waste in production processes. With a focus on efficiency and quality, they eliminate non-value-added activities, reduce production cycle times, and minimize product defects. This approach helps SOEs improve overall productivity, create a more efficient and effective work environment. Thus, through these steps, SOEs in the defense industry can to achieve high levels of operational efficiency, ensuring that they remain competitive in the global market and better meet national defense demands.

3.1.2. Key Factors Influencing the Success of SOE Development Policies

The success of SOE development policies in the defense industry encompasses coordinated inter-agency cooperation, investment in research and development (R&D), and supportive regulations, such as the formulation of clear regulations related to technology transfer and investment incentives.

3.1.2.1. Inter-Agency Cooperation

Establishment of coordination forums between the Ministry of Defense, SOEs, the Navy, and defense industries to synchronize agendas and needs: The formation of coordination forums between the Ministry of Defense, SOEs, the Navy, and defense industries is an important initial step. This forum aims to unite stakeholders and synchronize agendas and common needs in the development of the defense industry.

Setting up routine communication mechanisms and coordination meetings to ensure smooth information flow: Establishing routine communication mechanisms and coordination meetings lays the groundwork for maintaining smooth information flow among all involved parties. Thus, discussions and inter-agency coordination can be conducted regularly and efficiently.

Formation of joint teams to handle collaborative projects between agencies: Establishing joint teams to handle collaborative projects between agencies is an

important subsequent step. These teams are responsible for planning, implementing, and monitoring collaborative projects, ensuring that inter-agency cooperation runs smoothly and yields results in line with set targets.

3.1.2.2. Investment in Research and Development (R&D)

Establishment of research and development centers focusing on maritime technology innovation (Zhang, Zhou and Tian, 2022), such as anti-submarine sensors and precision navigation systems: Establishing research and development centers focusing on maritime technology innovation is a top priority. These centers focus on developing technologies such as anti-submarine sensors and precision navigation systems, which are crucial components of effective maritime defense. Through these centers, SOEs can generate innovative solutions relevant to Indonesia's maritime defense needs.

Allocation of funds for long-term research programs to create leading-edge technology in maritime defense: Allocating funds for long-term research programs is a strategic step in creating leading-edge technology in maritime defense. This funding enables SOEs to conduct in-depth and sustainable research in developing advanced technologies that can provide competitive advantages for Indonesia on a global scale.

Collaboration with universities and research institutions to optimize research resources and enhance innovation capabilities (Agus and Sri, 2023): Collaboration with universities and research institutions is key to optimizing research resources and enhancing innovation capabilities. Through this collaboration, SOEs can access the latest knowledge and expertise from experts in various fields, as well as expand their research networks to achieve better and faster results. Thus, this collaboration strengthens SOEs' position in developing cutting-edge maritime defense technology.

3.1.2.3. Supportive Regulations

Revision of investment policies to provide incentives and protection for investors in the defense industry: Revision of investment policies aims to provide incentives and protection for investors in the defense industry (Jin et al., 2022). By reviewing existing investment policies, the government can create a conducive environment for investment in this sector, including providing tax incentives and legal protection for investors.

Formulation of clear regulations related to technology transfer and information security in international

cooperation: Formulating clear regulations related to technology transfer and information security is a crucial step in international cooperation. Clear and firm regulations will provide clarity and legal certainty for all parties involved in the exchange of technology and information, ensuring that national security is maintained.

Enhancement of transparency and accountability (Ruiz-Lozano et al., 2022) in the licensing process and defense industry regulations: Enhancing transparency and accountability in the licensing process and defense industry regulations is a priority. By strengthening transparency in the licensing process, the government can reduce excessive bureaucracy and expedite the implementation of defense industry projects. Additionally, increasing accountability will ensure that regulations are properly implemented and provide fairness to all parties involved. Thus, these steps will help create a conducive environment for the growth and development of the Indonesian defense industry.

3.1.3. Further Improvement and Development Steps

Further improvement and development steps in the maritime defense industry include enhancing synergy with the government through the establishment of special teams and discussion forums, boosting R&D investment through fiscal incentive programs and the establishment of innovation centers, as well as improving responsive regulations through the formation of regulatory committees and independent audits. These steps aim to strengthen collaboration between SOEs and the government, drive technological innovation, and ensure regulatory compliance to foster the growth and advancement of the Indonesian maritime defense industry.

3.1.3.1. Enhancing Synergy with the Government

Establishment of special teams between SOEs and the government to develop a roadmap for maritime defense industry development: The formation of special teams between SOEs and the government is the first step taken. These teams are tasked with developing a roadmap for maritime defense industry development, ensuring alignment of vision and objectives between the public and private sectors in the development of the defense industry. Their combination allows SOEs to enjoy managerial efficiency in terms of allocation of resources together with a long-term vision, patient capital, and synergy with government policies (Landoni, 2020).

Organizing regular discussion forums to share information and unify strategic visions between the government and industry: Additionally, SOEs organize regular discussion forums between the government and industry. These forums aim to share information and unify strategic visions between both parties, strengthening coordination and collaboration at all levels (Huang et al., 2020; Castelnovo, 2022).

Development of training and capability development programs for government personnel involved in overseeing the defense industry: Furthermore, SOEs also develop specialized training and capability development programs for government personnel involved in overseeing the defense industry. These programs are designed to enhance their understanding and skills in effectively managing and supervising this sector, ensuring effective government oversight of the maritime defense industry.

With these steps, synergy between SOEs and the government is strengthened, creating a solid foundation for the growth and advancement of the Indonesian maritime defense industry.

3.1.3.2. Encouraging R&D Investment

Launching fiscal incentive programs to encourage SOEs and private investors to increase funding allocation for R&D (Zhang, Zhou and Tian, 2022): Launching fiscal incentive programs is one of the key steps. This program aims to encourage SOEs and private investors to be more active in increasing funding allocation for R&D (Chen, Xie and Van Essen, 2021). With the fiscal incentives provided, it is expected that there will be an increase in investment in innovation and technology development in the maritime defense sector.

Establishment of innovation centers and technology incubators supported by the government to facilitate collaboration between SOEs, startups, and research institutions: The establishment of innovation centers and technology incubators supported by the government is another important step. These centers will facilitate collaboration between SOEs, startups, and research institutions to generate innovative solutions in the field of maritime defense. Through this collaboration, it is hoped that an environment conducive to the growth and development of new technologies will be created.

Development of scholarship and internship programs for young researchers in the field of maritime defense technology to enhance national R&D capacity (Yan et al., 2023): Additionally, SOEs also develop scholarship and internship programs for young researchers in the field of maritime defense

technology. These programs aim to enhance national R&D capacity by providing opportunities for young talents to engage in research and technology development. Thus, it is expected to create a generation of high-quality and competent researchers to support the advancement of the Indonesian maritime defense industry.

3.1.3.3. Improving Responsive Regulations

Formation of regulatory committees comprising representatives from industry, government, and academia to oversee and periodically revise regulations (Cong Phuong, Dinh Khoi Nguyen and Phuoc Vu, 2020): The formation of regulatory committees involving representatives from industry, government, and academia is a priority. This committee is tasked with overseeing and periodically revising regulations, ensuring that existing regulations remain relevant and aligned with the latest developments in the defense industry.

Increasing regional cooperation in harmonizing defense industry regulations to promote market integration and shared growth: To promote market integration and shared growth, SOEs enhance regional cooperation in harmonizing defense industry regulations. This step aims to create a conducive environment for trade and investment at the regional level, as well as strengthen Indonesia's defense industry position in the global market.

Implementation of regular independent audits on SOEs' compliance with applicable regulations and industry standards: SOEs also conduct regular independent audits on their compliance with applicable regulations and industry standards (Zahid, Saleem and Sahil, 2023). Through these audits, SOEs can evaluate their performance in complying with established regulations and standards, as well as identify areas requiring improvement or further enhancement.

With these steps, it is expected that responsive regulations tailored to the needs of the defense industry will continue to be strengthened, creating a stable and conducive environment for the growth and advancement of this sector.

3.2. Implication

This study offers a theoretical framework that can be applied to other industries where state ownership is relevant, indicating broader applicability of the arguments beyond the defense sector. The insights gained from the

experience with SOE reform can provide a theoretical basis for understanding similar transitions in other countries, particularly those with significant state involvement in the defense industry. This can lead to a broader discussion about the role of SOEs in global economic dynamics. This paper proposes an adaptation of the dimensional policy strategy framework to the context of defense SOEs, which may influence future research on policy strategy and its impact on organizational strength.

The implications of the research extend to practical applications, as understanding the dynamics of mixed ownership can guide policymakers in designing reforms that enhance the innovative capabilities of SOEs, thereby contributing to sustainable economic development. This study also paves the way for examining the influence of institutional environment on innovation strategy, which suggests that future research could explore how external factors interact with ownership structure to shape innovation outcomes in defense SOEs in strengthening the state's defense structure. The comparative institutional approach provides a framework for understanding state-owned enterprises (SOEs) in the defense sector, which can lead to a better understanding of their roles and functions in defense diplomacy.

4. CONCLUSION

With the development of technology and rapidly evolving threats, the need for effective and adaptive naval armaments is increasingly pressing. SOEs have significant potential to act as drivers in strengthening the capabilities of naval armaments. Additionally, SOEs can also serve as catalysts for technology transfer and enhancing self-reliance in the production of naval armaments. This paper aims to delve deeper into the role and contribution of SOEs in the development of the defense industry, particularly in the context of strengthening the capabilities of naval armaments.

The analysis of SOE development strategies in the defense industry is the main focus of this research due to its crucial influence on shaping a country's defense capabilities, particularly in strengthening naval armaments. Several important findings resulting from this analysis reinforce awareness of the crucial role of SOEs in supporting maritime defense while highlighting the potential of specific strategies in achieving the goals of strengthening naval armaments, such as:

Variation of Strategies Adopted by SOEs in Developing the Defense Industry, consists of Product Diversification, and Technological Innovation; Collaboration with

Strategic Partners; Operational Efficiency Improvement. Besides that, the success of SOE development policies in the defense industry encompasses coordinated inter-agency cooperation, investment in research and development (R&D), and supportive regulations, such as the formulation of clear regulations related to technology transfer and investment incentives. Further improvement and development steps in the maritime defense industry include enhancing synergy with the government through the establishment of special teams and discussion forums, boosting R&D investment through fiscal incentive programs and the establishment of innovation centers, as well as improving responsive regulations through the formation of regulatory committees and independent audits.

5. LIMITATION AND FUTURE RESEARCH

This study has several limitations and provides suggestions for future research. First, encourage future research to explore the role of home country conditions in shaping perceptions of SOEs across institutional contexts, thereby contributing to a more systematic theory of international business practices. This understanding can inform theoretical frameworks on the dynamics of state versus private ownership in the defense sector. Second, it is necessary to propose that future research explore the concept of systems in the infrastructure networks of state-owned enterprises, which can enhance theoretical discussions on the interdependence of subsystems in an economy and their collective resilience or vulnerability. Third, this study emphasizes the need for further exploration of how political connections influence decision-making processes within firms, particularly in the context of agency theory, which may lead to a deeper understanding of conflicts of interest and governance structures in the integration of SOEs and private companies in supporting the country's defense forces.

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