

Defense industry policy strategy in developing the national defense system to strengthen national security

I Nyoman Suadnyana*, Sovian Aritonang

*Corresponding author, Email: nyoman.suadnyana@doktoral.idu.ac.id

Indonesia Defense University, Indonesia Peace and Security Center (IPSC) Area, Sentul, Bogor, West Java, Indonesia

Paper received: 25-09-2024; revised: 13-12-2024; accepted: 24-03-2025; published: 30-04-2025

How to cite (APA Style): Suadnyana, I. N., & Aritonang, S. (2025). Defense industry policy strategy in developing the national defense system to strengthen national security. *Jurnal Praksis dan Dedikasi Sosial (JPDS)*, 8(1), 231-236. DOI: 10.17977/um022v8i12025p231-236

Abstract

Indonesia's defense policy is shaped by the growing complexity of military, non-military, and hybrid threats that challenge national sovereignty and territorial integrity. In response to these evolving threats and the broader VUCA (volatility, uncertainty, complexity, ambiguity) environment, Indonesia has implemented the Sishanta strategy, an integrated defense approach combining military and civilian resources. This study examines the strategic role of Indonesia's defense industry in strengthening national security, with particular emphasis on the development of indigenous defense technologies (Alutsista) and the importance of public-private collaboration. Despite its strategic position in Southeast Asia and increasing modernization efforts, Indonesia continues to face critical obstacles, including reliance on foreign technology, limited skilled human capital, and weak innovation capacity. The research identifies key strategies to overcome these challenges, such as promoting technology transfer, increasing investment in research and development, and enhancing workforce capabilities. The findings underscore the need for a comprehensive and integrated policy framework to support defense self-reliance and ensure long-term national security in an increasingly unpredictable global landscape.

Keywords: defense policy; national security; defense equipment; defense industry; development

INTRODUCTION

The development of a national defense system is a fundamental pillar in safeguarding a country's sovereignty and ensuring its security. In Indonesia, defense policy is shaped by a convergence of military, non-military, and hybrid threats that increasingly challenge the integrity of the state. As mandated by the 1945 Constitution, Indonesia adopts a total defense strategy that engages all citizens and national resources in the protection of territorial sovereignty (Laatabi et al., 2022). In response to a rapidly evolving global environment characterized by VUCA (Volatile, Uncertain, Complex, Ambiguous) conditions (Sarjito, 2023), the Indonesian government has adopted the Sishanta approach. This integrated model combines military and non-military resources to address both conventional and emerging security threats, including cybersecurity (Prameisty & Ummah, 2024; Ramadhianto et al., 2023; Reis, 2024). However, while the strategic foundation is in place, significant gaps remain in the practical implementation of Indonesia's defense goals.

Despite having a well-established constitutional and strategic framework, Indonesia continues to face substantial challenges in building a self-reliant and technologically advanced defense sector. These include a heavy dependence on imported components and defense systems (Nurfitriani et al., 2023), a limited budget allocation for research and development, only 1-3% of total defense expenditure (Kasihono & Suwito, 2024), and an overall lack of technological

innovation and skilled human capital (Damanik et al., 2024). Moreover, issues such as inconsistent product quality (Nurfitriani et al., 2023) and fragmented coordination between stakeholders (Harting et al., 2024) further hinder the implementation of defense priorities. This reveals a critical gap between policy ambition and operational capacity, particularly in terms of achieving defense industrial autonomy.

Within this context, the Indonesian defense industry holds a strategic role, not only as a safeguard of national security but also as a catalyst for technological and economic development (Kristóf, 2024; Sarjito, 2024). Yet, questions remain about how effectively current strategies are closing the gap between defense policy and industrial capability. While modernization efforts have been initiated under Presidential Regulation No. 8/2021, including strengthening military branches, enhancing reserve forces, and rejuvenating domestic manufacturing (Arbani, 2024; Billi et al., 2024; Purbaningrat et al., 2024), the realization of defense independence still faces systemic and structural obstacles. This study, therefore, investigates the strategies pursued by Indonesia's defense industry to overcome these challenges, focusing on policy direction, technology mastery, public-private collaboration, and adaptive innovation (Wibowo et al., 2024; Kanno & Miwa, 2024; Mahendi, 2022). To explore this further, the following section analyzes how Indonesia's defense industry is addressing these ongoing challenges through strategic policy and innovation efforts.

By analyzing current approaches within the Indonesian context and comparing them with broader academic and policy literature (Qari et al., 2024), this article aims to contribute insights into how developing countries can enhance national security while building a self-sufficient defense capability. The novelty of this research lies in its integrated examination of industrial, technological, and policy dimensions of defense development in Indonesia, with particular attention to implementation gaps and future-readiness under VUCA conditions.

METHOD

This qualitative descriptive study uses a literature review methodology to analyze Indonesia's defense industry policy and domestic defense technology development. This qualitative research employs multiple approaches, including an analytical approach and a case study approach, with data gathered through literature review and empirical (field) research. Data collection methods include observation and sourcing information from government policies, research studies, and academic literature related to the defense industry, military technology, and national security. By reviewing existing knowledge and practices in the field of Indonesian defense management, this study seeks to identify the main challenges faced during efforts to achieve independence in defense capabilities and outline practical strategies aimed at overcoming these problems.

RESULTS AND DISCUSSION

To attain self-sufficiency in defense capabilities, the establishment of a comprehensive policy framework is crucial. Based on our research, several key strategies have been identified to improve national security and reinforce the development of indigenous defense systems (Alutsista). However, Indonesia's defense sector continues to grapple with significant obstacles, including reliance on imported technology and components, a lack of qualified human resources, and insufficient technological advancement.

These challenges significantly hinder Indonesia's ability to develop a strong and independent defense capability, thereby posing risks to national sovereignty and security. This study highlights the strategic urgency of strengthening Indonesia's defense industry to safeguard national interests and reduce reliance on foreign technologies. The findings point to several critical areas that demand targeted and coordinated interventions. First, technology transfer emerges as a key necessity, as gaps in technological capacity can be narrowed through international

partnerships that facilitate the acquisition and adaptation of advanced systems. Second, investment in research and development (R&D) remains insufficient; thus, a substantial increase in R&D funding is vital to foster the internal development of cutting-edge defense technologies, supporting Indonesia's long-term strategic autonomy. Third, the shortage of skilled professionals within the defense sector underlines the importance of human resource development through structured training and education programs, which can cultivate domestic innovation and technical expertise. Fourth, public-private partnerships are essential to leverage government resources and the innovative capabilities of the private sector, accelerating progress in defense manufacturing and system integration. Lastly, the study recommends an integrated policy approach that aligns defense industrial development with national economic strategies, education reforms, and the growth of technology-based entrepreneurship.

Indonesia's defense sector faces several persistent challenges that require comprehensive and coordinated solutions. One of the most pressing issues is the country's dependence on imported technology, which undermines national autonomy and creates vulnerabilities in supply chains. To address this, the government must incentivize local production through favorable policies and direct support to domestic companies, thereby reducing reliance on imports. Another critical concern is the inconsistency in quality control across domestically produced defense equipment. Strengthening quality assurance mechanisms and aligning them with international standards will enhance the reliability and global competitiveness of local products. Additionally, communication gaps among stakeholders, government agencies, defense contractors, and research institutions, often delay the timely implementation of defense projects. Building a robust communication infrastructure that enables seamless coordination is essential for the efficient execution of national defense priorities.

Our findings emphasize the importance of implementing several strategic measures to overcome these obstacles. One such measure is promoting technology transfer through collaboration with international partners, ensuring that advanced technologies can be acquired and adapted locally without fostering long-term dependency. At the same time, increased investment in research and development (R&D) is vital. By establishing cutting-edge research facilities and providing incentives for scientists and engineers, Indonesia can significantly boost its capacity to develop advanced military technologies domestically. Another crucial area is manpower development. Training programs that focus on modern warfare, engineering, and cybersecurity will equip the defense workforce with the skills necessary to confront evolving threats. Furthermore, fostering public-private partnerships can accelerate innovation and production, as these collaborations combine the resources and capabilities of state-owned enterprises with the creativity and efficiency of the private sector. Lastly, the establishment of an integrated policy framework is necessary, one that connects defense industrial development with economic policy, educational reform in science and technology, and a regulatory environment that encourages entrepreneurship in defense-related fields. These strategic directions are further detailed in Table 1, which outlines key initiatives across policy, education, innovation, and implementation phases.

The framework outlined above presents a structured approach to realizing Indonesia's vision of an independent defense industry. The comprehensive policy framework section emphasizes the importance of integrating various layers of governance, such as defense procurement, educational institutions, and industry partnerships. These elements must work together to move Indonesia towards defense autonomy, which ensures security and long-term stability.

Tabel 1. Strategic Approaches Toward Achieving Indonesia's Defense Self-Reliance

Section	Key Aspects	Objective
Comprehensive Policy Framework	Integration across governance layers: defense procurement, education, industrial collaboration.	Sustainable progress toward self-reliance in the defense sector.
Case Study & Analogy- Agricultural Independence	Hybrid approach combining quantitative (SEM) and qualitative (SSM) analysis.	Strengthening innovation readiness and capacity.
Case Study & Analogy – Community-Based Innovation	Leveraging community participation to enhance operational readiness and reduce reliance on centralized command.	Promoting a decentralized defense structure.
Case Study & Analogy – Defense Education Initiative	Integrated defense education combining theoretical and practical application.	Equipping future generations with skills for national security.
Case Study & Analogy – Economic Model of Islamic Boarding Schools	Vocational training programs in the defense sector are aligned with economic self-sufficiency models.	Sustainable, defense-oriented vocational initiatives.
Implementation Roadmap – Short-Term Interventions	Immediate investment in R&D infrastructure, establishment of defense technology training centers, public-private partnerships.	Building the foundation for a resilient defense system.
Implementation Roadmap – Medium-Term Actions	Local manufacturing development, enhanced cybersecurity measures, integration of STEM curriculum tailored to defense needs.	Developing essential capabilities and fostering system integration.

Case studies provide valuable analogies from unrelated sectors, offering innovative perspectives in addressing challenges in defense. For example, the agribusiness independence model serves as a prime example of how a hybrid analytical approach (combining SEM and SSM) can be leveraged to drive innovation and readiness in defense. Similarly, community-based innovation underscores the importance of decentralized operations, as local participation enhances economic resilience.

These lessons can be applied to defense initiatives, increasing adaptability and minimizing reliance on central command. The case of the education initiative illustrates parallels on how an integrated curriculum can develop a workforce of skilled workers ready to face the evolving security landscape. By integrating theory and practice into defense education, Indonesia can prepare its future leaders to confidently address complex defense challenges. Furthermore, the Pesantren economic model illustrates how vocational training in defense can increase productivity and sustainability, helping Indonesia build a specialized and self-reliant workforce.

The implementation roadmap outlines the actionable steps required to achieve this vision. Immediate interventions such as investment in R&D infrastructure and the establishment of training centers will lay the foundation for a more advanced defense industry. In the medium term, the development of local manufacturing facilities and the integration of cybersecurity will further strengthen Indonesia's defense capabilities. The long-term vision seeks the establishment of a fully autonomous defense production chain that minimizes external dependency and secures national resilience.

By adopting this multifaceted approach, Indonesia can advance meaningfully toward achieving defense self-reliance. Every measure is intended to bridge both technical and

institutional deficiencies, ensuring the nation's defense sector is well-prepared to confront modern security challenges and uphold national sovereignty.

To achieve true independence in the defense sector, a comprehensive and well-integrated policy strategy is essential. One of the foremost priorities is the strengthening of technology transfer mechanisms, particularly through enforceable regulations embedded in every defense procurement contract with developed countries. This ensures that each acquisition contributes to the long-term buildup of domestic capabilities. Equally critical is increasing the budget allocation for research and development (R&D), with a targeted focus on strategic technologies such as artificial intelligence and cyber defense systems, fields that are essential for modern warfare readiness. Alongside technological advancement, investment in human resource capacity is urgently required, particularly in the education and training of military engineers and technicians, whose expertise forms the backbone of any indigenous defense initiative. Furthermore, Indonesia should leverage regional cooperation platforms, such as ASEAN, to foster strategic partnerships and joint ventures in defense technology development, thereby accelerating innovation while strengthening geopolitical ties.

CONCLUSION

This study emphasizes the critical contribution of an independent defense industry to strengthening Indonesia's national security. The findings indicate that building a robust defense sector requires a comprehensive approach, including increased investment in research and development, improved human resource capacity, and stronger collaboration between the public and private sectors. Moreover, aligning these efforts with broader national development strategies will support Indonesia's journey toward self-reliance in defense. Future policy directions should prioritize fostering innovation, enhancing the quality of locally produced defense equipment, and ensuring readiness to address both current and emerging security threats. The recommendations provided aim to assist policymakers in formulating an integrated and forward-looking strategy to secure Indonesia's long-term defense sustainability and national stability.

REFERENCES

- Arbani, M. (2024). Pentingnya badan intelijen pertahanan dalam non-combat military mission: Instrumen Perhatian Khusus untuk Peningkatan Kapasitas dan Kapabilitas Pertahanan. *Jurnal Syntax Admiration*, 5(5), 1876–1891.
- Billi, M., Allendes, A., Jiliberto, R., Ramos-Jiliberto, R., Salinas, B., & Urquiza, A. (2024). Systemic modeling strategies in public policy: An appraisal from literature. *Environmental Science & Policy*, 153, 103668.
- Damanik, S. C., Tarigan, H., Sumarno, A. P., & Almubaroq, Z. (2024). Investment dynamics in the Indonesian defense industry: A literature study analysis. *International Journal of Humanities Education and Social Sciences (IJHESS)*, 3(4), 1992–1998.
- Harting, S., Gonzales, D., Mazarr, M. J., & Schmid, J. (2024). Comparative analysis of US and PRC efforts to advance critical military technology. In *Analytic Approach for Conducting Comparative Technology Assessments*. RAND.
- Kanno, T., & Miwa, H. (2024). Military threats, international pressure, and public opinion on the nuclear ban treaty in Japan. *Journal for Peace and Nuclear Disarmament*, 7(2), 446–467. <https://doi.org/10.1080/25751654.2024.2387896>
- Kasihono, S. C., & Suwito, S. (2024). Research budget improves national product independence: A national resilience perspective. *International Journal of Humanities Education and Social Sciences (IJHESS)*, 3(6), 3194–3201. <https://doi.org/10.55227/ijhess.v3i6.1108>
- Kristóf, T. (2024). Development tendencies and turning points of futures studies. *European Journal of Futures Research*, 12(1), 9. <https://doi.org/10.1186/s40309-024-00231-7>
- Laatabi, A., Becu, N., Marilleau, N., Amalric, M., Pignon-Mussaud, C., Anselme, B., Beck, E., Bertin, X., Monfort, A., & Hayoun, C. (2022). LittoSIM-GEN: A generic platform of coastal flooding management for participatory simulation. *Environmental Modelling & Software*, 149, 105319.

- Mahendi, H. (2022). Industri pertahanan nasional dalam strategi penangkalan. *JIIP-Jurnal Ilmiah Ilmu Pendidikan*, 5(11), 4763–4768.
- Nurfitriani, W., Nugroho, V., & Deksono, G. R. (2023). Empowering the Association of Indonesian National Private Defense Industries (Pinhantanas) to build the independence of the defense industry. *Jurnal Pertahanan: Media Informasi Ttg Kajian & Strategi Pertahanan Yang Mengedepankan Identity, Nasionalism & Integrity*, 9(2), 388.
- Prameisty, A., & Ummah, K. C. (2024). Budaya masyarakat Madura sebagai Sishankamrata (Sistem Pertahanan Rakyat Semesta). *Journal of Social, Culture, and Language*, 2(2), 41–47.
- Purbaningrat, B. W., Apriyanto, I. N. P., & Deksono, G. R. (2024). Demographic Bonus management strategies in facing the industrial revolution 4.0 with the perspective of defense science and state defense. *International Journal of Humanities Education and Social Sciences (IJHESS)*, 3(5), 2354–2360. <https://doi.org/10.55227/ijhess.v3i5.851>
- Qari, S., Börger, T., Lohse, T., & Meyerhoff, J. (2024). The value of national defense: Assessing public preferences for defense policy options. *European Journal of Political Economy*, 85, 102595. <https://doi.org/10.1016/j.ejpoleco.2024.102595>
- Ramadhianto, R., Toruan, T. S. L., Kertopati, S. N. H., & Almubaroq, H. Z. (2023). Analysis of presidential regulations concerning cyber security to bolster defense policy management. *Defense and Security Studies*, 4, 84–93. <https://doi.org/10.37868/dss.v4.id244>
- Reis, J. (2024). European union defense and security strategy for space and ground-based systems against hybrid threats. *Acta Astronautica*, 225, 55–66. <https://doi.org/10.1016/j.actaastro.2024.09.003>
- Sarjito, A. (2023). Integrating the concept of situational leadership and V.U.C.A. in formulating adaptive and responsive defense policies. *Journal of Social Interactions and Humanities*, 2(3), 221–238. <https://doi.org/10.55927/jsih.v2i3.6229>
- Sarjito, A. (2024). Enhancing national security: Strategic policy development in defense management. *Jurnal Pelita Nusantara*, 2(1), 56–68. <https://doi.org/10.59996/jurnalpelitanusantara.v2i1.524>
- Wibowo, C., Suseto, B., & Susmoro, H. (2024). Deterrence strategy through deploying KRI in the North Natuna Sea to support the national defense system. *International Journal of Humanities Education and Social Sciences (IJHESS)*, 3(5), 2799–2813. <https://doi.org/10.55227/ijhess.v3i5.1023>