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STRATEGIC LEADERSHIP TO STRENGTHEN AIRPOWER STRATEGY TO SUPPORT NATIONAL DEFENSE SYSTEM

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Abstract

This study investigates how strategic leadership can strengthen airpower strategy to support Indonesia's national defense system. Indonesia's geostrategic position in the Indo-Pacific exposes it to airspace incursions, cyberattacks on radar and communications, and the employment of drones for espionage and sabotage, underscoring the need for an adaptive and integrated airpower posture. Using a qualitative phenomenological design, data were gathered through interviews with Indonesian Air Force (TNI AU) leaders, operational observations, and analysis of defense documents. Data were analyzed with Miles, Huberman, and Saldaña's interactive model, and credibility was reinforced through source- and method-triangulation. Findings indicate that visionary leadership acts as a catalyst for defense modernization, organizational reform, and professionalization of personnel. Cross-agency collaboration with the Ministry of Defense, BRIN, and the national defense industry (DEFEND ID) accelerates mastery of UAVs, passive radar, and

C4ISR systems. AI- and big-data–enabled innovations enhance detection speed and response effectiveness against multidomain contingencies, while a whole-of-government approach strengthens societal legitimacy and support for airpower. Comparative lesson-drawing suggests Indonesia can adapt the U.S. acceleration doctrine, South Korea's research–industry synergy, Turkey's pursuit of defense industrial autonomy, and Singapore's Total Defense framework. The study concludes that integrating strategic leadership with a modernized airpower strategy is foundational to an adaptive, responsive, and highly deterrent Indonesian air defense system.

Keywords

Strategic leadership, airpower, threats, defense modernization, Indonesia.

Introduction

In an increasingly complex geopolitical era, the national defense system is a key pillar in maintaining sovereignty and territorial integrity. Indonesia, as the world's largest archipelagic nation with maritime territory covering two-thirds of its total area, faces security challenges, including asymmetric threats, natural resource conflicts, and regional power competition in the Indo-Pacific region. Amid these dynamics, airpower strategy as a crucial component of modern defense doctrine plays a central role in supporting the nation's defense system. Airpower encompasses not only conventional air capabilities such as fighter jets and helicopters, but also the integration of advanced technologies such as drones, reconnaissance satellites, and network-based air defense systems. However, the effectiveness of this airpower strategy depends heavily on strategic leadership capable of integrating long-term vision, limited resources, and adaptation to changing strategic environments. This study aims to analyze the role of strategic leadership in strengthening airpower strategies to support the national defense system, with a focus on the Indonesian context. Indonesia, as the largest archipelagic country in the world with more than 17,000 islands and maritime territory covering two-thirds of its total area (approximately 5.8 million km^2), faces unique challenges in the national defense system. This archipelagic geography makes Indonesia a "global maritime axis".

The national airspace is not merely a static geographic space, but rather a dynamic arena fraught with multiple threats, ranging from civil and military airspace violations, electronic attacks on radar systems, cyberwarfare, to regional conflicts that have the potential to escalate into open confrontation. In this context, air power *is* one of the main pillars of national defense that determines the effectiveness of the national security system. For Indonesia, with its strategic position as an archipelagic nation with the second-longest coastline in the world, strengthening *air power* is both an urgent need and a strategic priority in facing evolving threats (Global Firepower, 2023; IISS, 2022).

The main problem facing Indonesia is the vulnerability of its airspace to cross-border violations by both foreign civilian and military aircraft. Ministry of Defense data shows that in the past decade, there have been dozens of incidents of airspace violations in the Natuna region and the North Kalimantan border, most of which involved foreign aircraft without official authorization (Kemhan RI, 2023). Indonesia's vast geography, with thousands of islands, also makes air

surveillance a serious challenge, as not all areas are equipped with sophisticated radar capable of detecting threats in real time. Furthermore, the limited fleet of fighter aircraft and delays in modernizing defense equipment mean that Indonesia's air deterrence is less than optimal compared to other countries in the Indo-Pacific region (IISS, 2022).

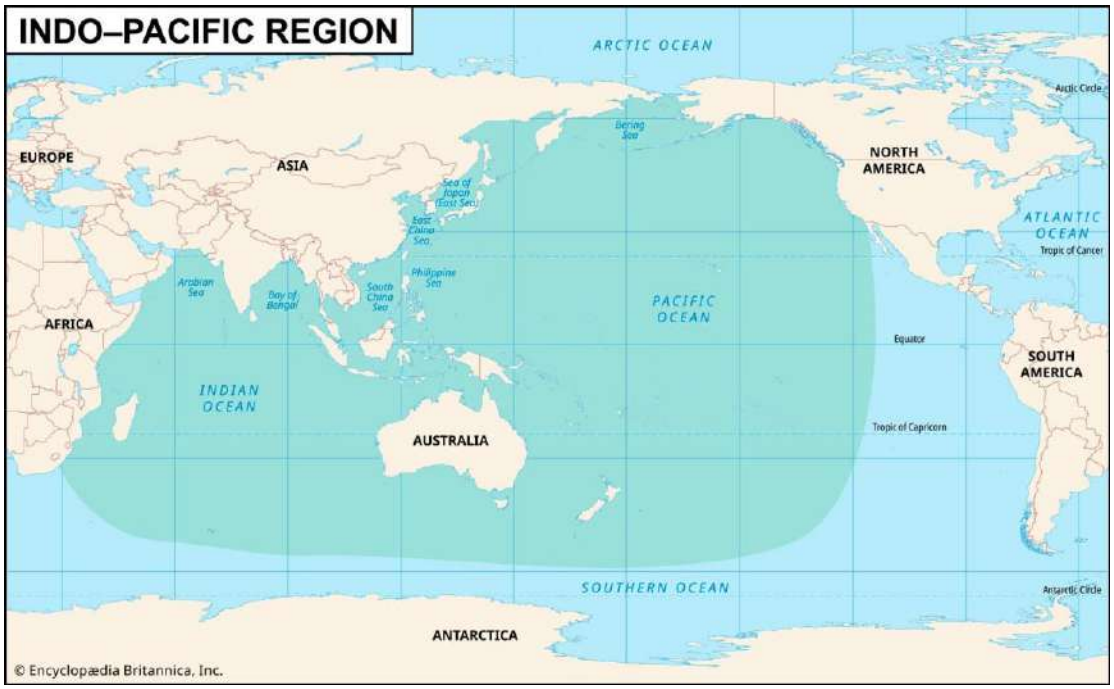


Image: Map of the Indo-Pacific Region" (Encyclopaedia Britannica, Inc.)

Another problem lies in the nature of contemporary threats, which are no longer isolated. Air threats are now integrated with cyberattacks on military communications systems, the use of drones for espionage and sabotage, and information operations that undermine the legitimacy of national defense. This requires Indonesia to have not only a sufficient number of fighter jets, but also an *airpower system* integrated with digital technology, artificial intelligence, and a centralized command system. Without robust *airpower capabilities,* Indonesia risks losing its strategic advantage in the airspace, which could ultimately disrupt the stability of national defense as a whole.

The national airspace is not merely a static geographic space, but rather a dynamic arena fraught with multiple threats, ranging from civil and military airspace violations, electronic attacks on radar systems, cyberwarfare, to regional conflicts that have the potential to escalate into open confrontation. In this context, air power *is* one of the main pillars of national defense that determines the effectiveness of the national security system. For Indonesia, with its strategic position as an archipelagic nation with the second-longest coastline in the world, strengthening *air power* is both an urgent need and a strategic priority in facing evolving threats (Global Firepower, 2023; IISS, 2022). The following is a table of violations of the Republic of Indonesia's airspace over the last 5 years, from 2019 to 2024, based on sources from the Indonesian Air Force:

Year	Number of Violations	Types of Aircraft Involved	General Violation Area	Vital Records
2019	364	Civilian aircraft (e.g. Boeing 777) and foreign military aircraft	Airspace of Batam, Riau Islands, Natuna	Force down Ethiopian Airlines Boeing 777 cargo plane for not having permission
2020	1,583	Foreign civil and military aircraft	Riau Islands, Natuna	Increased surveillance and enforcement of airspace law
2021	1,054	US military aircraft (F-18), India, foreign civil aircraft	FIR Singapore, Natuna	Violation by military and civil aircraft of strategic airspace
2022	274	Military aircraft, drones, civil aircraft, long march 5B rocket	FIR Singapore, Natuna, West Kalimantan, Papua	The incident of the fall of Long March 5B rocket debris and the shooting of illegal drones
2023	14	US and Indian military aircraft, US and Czech civilian aircraft	FIR Singapore, Riau Islands, North Sumatra	The number of cases has decreased, but remains significant, with military violations being dominant.
2024	18	Foreign civil and military aircraft -	Riau Islands, Natuna -	Strengthening of defense equipment and airspace surveillance continues

Table 1. Regional violation data

Data source: Indonesian Air Force Operations Staff

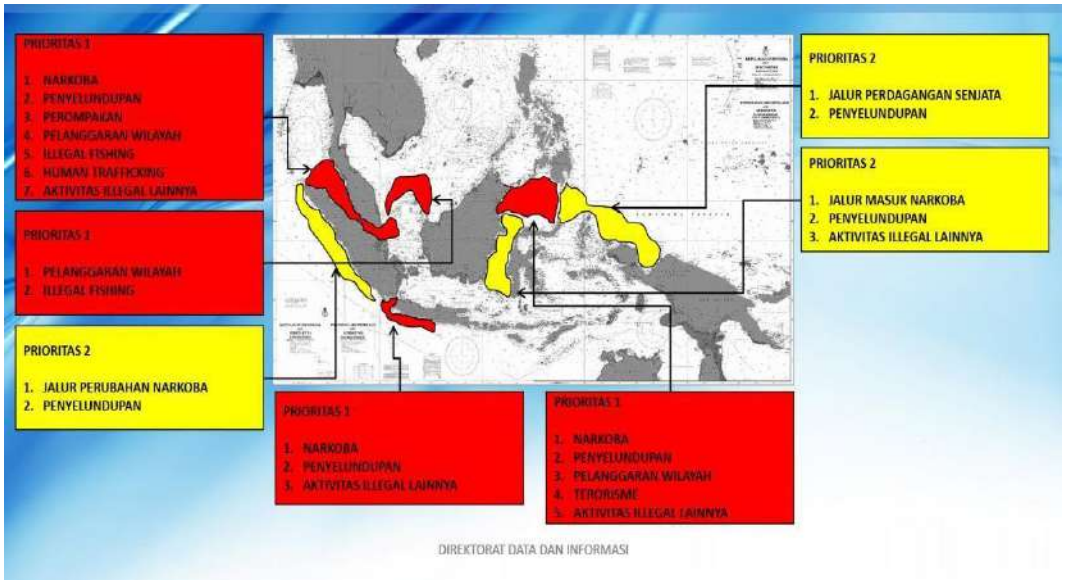
Airpower is a crucial element of a nation's defense system, inseparable from the overall national security strategy. In an increasingly complex global environment, threats to national sovereignty are increasingly diverse, ranging from hybrid media/electronic attacks and terrorism to inter-state armed conflict. According to the Global Security Index (2023), more than 60% of countries worldwide have experienced increased defense budgets, with a significant focus on strengthening airpower systems. perspective territoriality, room national air is room in on land area and/or region waters which is One unity of the whole region something country. From the aspect defense air, room state air defined as projection to the top from region surface a country Good in the form of mainland and waters. This shows that countries recognize the importance of having strong airpower to protect their airspace from potential threats.

Furthermore, the development *of airpower* in other countries in the region and globally further emphasizes the challenges facing Indonesia. China, through the modernization of the People's Liberation Army Air Force (PLAAF), emphasizes mastery of *integrated network electronic warfare* and expands long-range combat capabilities with the fifth-generation J-20 aircraft (IISS, 2022). South Korea is not only strengthening its air force with the F-35, but is also developing UAVs, AI-based defense systems, and the KF-21 Boramae fighter jet program, which strengthens domestic capacity (Kim, 2022). Japan, with *its National Defense Strategy 2022* , emphasizes the transformation of its air defense through a layered missile defense system and increased interoperability with allies, particularly the United States (MOD Japan, 2022).

Australia also emphasized the importance of air superiority in *its 2023 Defence Strategic Review,* by increasing investment in the F-35A Lightning II, aerial refueling systems, and strategic UAVs to strengthen deterrence in the Indo-Pacific region (Australian Government, 2023). India, on the other hand, continues to expand its Air Force capabilities with the Rafale modernization program, the integration of BrahMos missiles, and the improvement of long-range radar systems to secure its conflict-prone border regions (Tellis, 2022). Even Turkey has emerged as a new actor through the success of the Bayraktar TB2 and Akinci drones, which have been tested in various international conflicts, demonstrating the trend that *unmanned systems* are now a key element in modern *Airpower (Saygın, 2022).*

This dynamic confirms that the air power competition in the Indo-Pacific and beyond is shifting toward dominance based on advanced technology, cyber system integration, and defense industry independence. If Indonesia does not accelerate the integration of strategic leadership with its *airpower strategy,* the risks of technological backwardness, dependence on imported defense equipment, and a weakened strategic position in the region pose a real threat to national defense stability.

With increasingly sophisticated external and internal threats, it is crucial for a nation to have leaders capable of applying a data-driven approach to decision-making. By leveraging intelligence data and risk analysis, leaders can formulate more targeted strategies. This also aligns with advances in information technology that enable rapid access to relevant information. Therefore, strategic leadership is key to creating an airpower system that is adaptive and responsive to changing situations.



Picture 1.1 Scale Priority Vulnerability in Region Jurisdiction Indonesia in 2025

Source: Directorate Data And Information Bakamla Republic of Indonesia 2024

Strengthening Indonesia's airpower strategy reflects the current state of the national air defense system, encompassing the current state of key weapons systems, human resources, and institutions. Although Indonesia has improved several air defense systems, such as the procurement of NASAMS and radar integration, numerous obstacles remain, including imbalances in defense equipment modernization, budget constraints, and suboptimal cross-sector synergy. This situation reflects real challenges that must be addressed immediately to ensure the national air defense system can keep pace with increasingly complex threat dynamics.

The following is a comparison of Indonesia's airpower modernization with several countries:

Table: Comparison of Indonesia's Airpower Modernization with Other Countries

Country	Focus on Airpower Modernization	Main Power	Implications for Indonesia
China	J-20 5th generation aircraft, hypersonic missiles, *integrated electronic warfare*	PLAAF modernization, technological dominance, long-range air power (IISS, 2022)	Potential for air dominance in the South China Sea and the Indo-Pacific region
South Korea	UAV, AI for defense, KF-21 Boramae fighter jet, F-35	Military–industrial synergy (KAI), accelerating innovation (Kim, 2022)	Direct competitors in UAV and AI technology innovation
Japan	Layered missile defense, interoperability with the US, F-35 investment	*National Defense Strategy 2022* , radar modernization (MOD Japan, 2022)	Strengthening the security balance in the Indo-Pacific, encouraging technological

Country	Focus on Airpower Modernization	Main Power	Implications for Indonesia
			competition
Australia	F-35A, strategic UAV, long-range aerial refueling	Indo-Pacific *air superiority* posture (Australian Government, 2023)	Geopolitical pressures in the region and the need for defense interoperability
India	Rafale, BrahMos missile, long-range radar, domestic UAV program	Air resistance in the Himalayas & Indian Ocean (Tellis, 2022)	Potential partners and competitors in defense technology
Türkiye	Bayraktar TB2 drone, Akinci UCAV, domestic defense industry	Defense industry independence, global drone exports (Saygın, 2022)	A relevant industrial independence model for Indonesia
Indonesia	F-16, Sukhoi, KF-21 plans, UAV, C4ISR in development	Huge potential but still dependent on technology imports	Need to accelerate modernization and integration of strategic leadership

The comparison table above shows that the majority of countries in the region have positioned *airpower* as their primary deterrent, emphasizing defense equipment modernization, mastery of UAV technology, and the integration of digital and cyber systems. Indonesia, despite its significant potential as a strategic archipelagic nation, remains relatively lagging behind in terms of consistent modernization and independence in its defense industry. This situation underscores the importance of concrete steps to strengthen air capabilities, ensuring that Indonesia is not merely a trend-follower but is able to compete on equal footing with regional powers.

Indonesia's air defense modernization efforts in recent years have shown significant progress, including the acquisition of new-generation Rafale fighter jets, the planned procurement of F-15EXs, and improvements to the national radar system through domestic and international industrial collaboration. This modernization also aligns with international trends emphasizing the integration of UAVs, cyber defense systems, and artificial intelligence-based *command and control* as key factors in air superiority (Kim, 2022; Gilli & Gilli, 2023). However, the biggest challenge lies not only in the technical aspects of defense equipment procurement, but also in how the *Airpower strategy* is implemented in a coordinated manner across institutions.

Strategic leadership, in this case, acts as a catalyst. Visionary leaders not only ensure consistent air defense policy direction but also encourage innovation and collaboration across actors, including the Ministry of Defense, the Indonesian Air Force, BRIN, and the defense industry (Anderson & Sun, 2019; Mutahara & Fauzi, 2021). This approach emphasizes that integrating strategic leadership with *airpower strategy* is a prerequisite for building a sustainable, responsive, and adaptive air deterrent to multidimensional threat dynamics.

Strategic leadership, according to defense management theory, is not merely a decision-making process at the military elite level, but also encompasses the ability to develop a long-term vision, integrate cross-sector institutional synergies, and manage defense technology innovation. Strategic leaders are required to be able to read global threat patterns, interpret intelligence data with precision, and direct resources effectively so that air power is not merely a reactive instrument, but also a proactive one in safeguarding national sovereignty (Yukl, 2013; Bass & Riggio, 2006). This is evident in modern defense practices in several countries, for example, the United States Air Force, which under the leadership of General Charles Q. Brown Jr., has implemented a transformational strategy based on innovation and technological adaptation, an approach relevant to the Indonesian context (Brown, 2021).

In the Indonesian context, strategic leadership integrated with the *Airpower strategy* encompasses four main aspects. First, a strategic vision for air defense that anticipates geopolitical dynamics in the Indo-Pacific region. Second, the technical implementation of defense equipment modernization and network systems in line with this vision. Third, institutional synergy between the Indonesian Air Force (TNI AU), the Ministry of Defense, BRIN (National Agency for Research and Innovation), the defense industry, and civil institutions related to air security. Fourth, adaptation of defense innovations to non-traditional threats, such as cyberattacks, electronic warfare, and disinformation campaigns (Kemhan RI, 2023).

The ideal state (das sollen) is the realization of visionary and adaptive strategic leadership, capable of optimizing airpower strategy as the main reinforcement of the national defense system. In this vision, strategic leadership must be based on the principles of transformational leadership theory, where leaders not only manage existing resources but also encourage innovation through cross-sectoral collaboration, technology investment, and human resource development. A strong airpower strategy is expected to include the integration of full-spectrum capabilities, such as the development of an autonomous drone fleet and an AI-based air defense system, which is aligned with the Archipelagic Defense Doctrine (2020). As a result, the national defense system will be more resilient, with effective deterrence capabilities against hybrid threats, thus supporting the national goal of a secure and sovereign "Golden Indonesia 2045." Ideal strategic leadership must also emphasize military ethics and defense diplomacy, ensuring that reinforcements . Thus, strategic leadership, *airpower strategy* , and multidimensional threat dynamics are intertwined in shaping the direction of Indonesia's air defense policy. Visionary leaders are needed to ensure the integration of these three aspects to create an effective, adaptive, and highly deterrent air defense system.

Based on this foundation, this research focuses on the integration of strategic leadership and *airpower strategy* in response to threats. This integration is expected to strengthen defense equipment readiness, enhance personnel professionalism, and build a robust strategic deterrent in the face of cross-domain threats. Ultimately, a deeper understanding of this integration will provide theoretical contributions to the development of strategic leadership concepts in the defense sector, as well as practical recommendations for the formulation of Indonesia's future air defense policy.

Literature review

Strategic leadership is a concept that emphasizes a leader's ability to direct an organization through long-term vision, data-driven decision-making, and the creation of collective motivation among members. Bass and Riggio (2006) emphasized that transformational leadership is the foundation of strategic leadership, as its orientation is not only focused on organizational stability but also on innovation and adaptability. In a military context, strategic leadership means leaders are not only able to formulate policies but also direct the transformation process necessary to address changing global threats. Recent research emphasizes that strategic leadership in the defense sector must possess adaptive capacity in combining technological excellence, defense diplomacy, and organizational management to strengthen the nation's deterrent power (Anderson & Sun, 2019; Yukl, 2013; Cross et al., 2021; Mutahara & Fauzi, 2021).

Strategic leadership is defined as a leader's ability to formulate a long-term vision, anticipate changes in the external environment, and dynamically adapt the organization to achieve sustainable strategic goals (Yukl, 2013). According to Yukl (2013), strategic leadership is not merely tactical decision-making, but rather a holistic process involving environmental scanning, strategy formulation, and implementation involving all levels of the organization, where the leader acts as an architect of change to face uncertainties such as technological disruption or geopolitical threats. This opinion is supported by Hitt, Ireland, and Hoskisson (2017), who in their book *Strategic Management: Competitiveness and Globalization* emphasize that effective strategic leadership requires the integration of the leader's personal vision with organizational dynamics, so as to create long-term competitive advantages, especially in public sectors such as defense where resources are limited.

In the military context, strategic leadership theory is often integrated with the transformational approach, which according to Bass and Riggio (2006) involves leaders inspiring followers through charisma, intellectual stimulation, and individualized considerations to encourage innovation and adaptation to asymmetric threats. Bass and Riggio (2006) in *Transformational Leadership* (second edition) explain that transformational leadership differs from transactional leadership because of its focus on radical change, such as airpower modernization amidst budget constraints, where military leaders must motivate troops to go beyond conventional limits a concept relevant to the doctrine of the Indonesian National Armed Forces (TNI) such as Sishankamrata. A similar opinion is expressed by Finkelstein, Hambrick, and Cannella (2009) in *Strategic Leadership: Theory and Research on Executives, Top Management Teams, and Boards* , which states that in the military environment, strategic leadership involves executive teams (top management teams) to manage complexity, such as inter-service coordination (TNI AU, AL, AD) in dealing with regional conflicts, with an emphasis on ethics and accountability to prevent fragmentation.

Airpower strategy essentially encompasses the ability to conduct early detection, prevention, and response to threats in the airspace. Modern doctrine emphasizes that airpower lies not only in the number of fighter aircraft fleets, but also in an integrated system involving radar, *unmanned aerial vehicles* (UAVs), and digital-based command and control systems. NATO (2022) emphasizes that contemporary *airpower* must be designed with the principles of interoperability

and flexibility, in order to face both asymmetric and conventional threats. In the context of Indonesia, its geographical location as an archipelago with a large airspace area demands an *airpower strategy* capable of reaching all regions, while guaranteeing air sovereignty in border areas. Recent studies also show that the integration of UAVs and *Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance* (C4ISR) systems is a key indicator of *airpower effectiveness* in the era of multi-domain warfare (Gilli & Gilli, 2023; Kim, 2022; Saygın, 2022).

Meanwhile, threats increasingly emphasize the need for adaptive air defense. These threats are no longer limited to conventional military attacks, but also include cyberattacks on defense infrastructure, information campaigns that undermine state legitimacy, disruptions to economic stability, and environmental threats that weaken national resilience. The International Institute for Strategic Studies (2022) emphasizes that current attack patterns are non-linear, combining military and non-military instruments to simultaneously weaken opponents. For Indonesia, this situation demands an *airpower strategy* that focuses not only on technical aspects but also integrates cybersecurity strategies, defense diplomacy, and civil society readiness to support air defense. As stated by Williams and Le Billon (2023), resilience in the face of threats can only be achieved through a comprehensive and cross-sectoral approach (Raska, 2020; Chan, 2021).

Airpower strategy as a key pillar of modern defense is defined as the ability to achieve air superiority that enables control of enemy airspace, thus supporting deterrence and integrated operations in other domains such as maritime and land (Kaplan, 2012). According to Kaplan (2012) in *The Revenge of Geography,* airpower is not only a military tool but a geopolitical instrument that shapes the balance of power, where air superiority allows a country to project power asymmetrically, as in modern conflicts in the Indo-Pacific where countries like Indonesia must face threats from Chinese air power. This theory aligns with Giulio Douhet's (1921) classic concept in *Command of the Air,* which argued that airpower can win wars through direct strategic attacks on the enemy's center of gravity, emphasizing air independence as the key to avoiding costly land wars, a view that influences contemporary defense doctrine despite being criticized for neglecting civil resilience.

Another scholar, Billy Mitchell (1925) in *Winged Defense* , asserted that airpower should be a top priority in national strategy due to its superior speed and range compared to sea or land power, where he predicted that neglecting the air would leave the country vulnerable to surprise attacks a lesson relevant to Indonesia facing threats in the South China Sea. John Warden (1988), creator of the "Five Rings" model in *The Air Campaign,* argued that airpower is effective when it targets the enemy's leadership systems, infrastructure, and population in parallel, rather than just military targets, thus creating psychological and strategic effects that support long-term deterrence, such as the integration of UAVs in modern operations. Robert Pape (1996) in *Bombing to Win* added the empirical perspective that airpower is successful only when combined with clear political objectives, criticized the failure of pure air campaigns such as in Vietnam, and recommended a coercive approach to force the enemy to surrender without a land invasion, which can be applied to an archipelagic defense strategy.

David Deptula (2015), former director of operations of the US Air Force, in his article in *the Air & Space Power Journal,* stated that modern airpower strategy must be intelligence- and precision-based to avoid civilian casualties, where the integration of sensors and AI enables "parallel warfare" that dominates the entire spectrum of conflict, a concept that supports the defense of countries with limited budgets such as Indonesia. Benjamin Lambeth (2018) from the RAND Corporation in *Airpower in the New Counterinsurgency Era* argues that airpower has evolved from conventional attacks to precision counterinsurgency tools, such as the use of drones for reconnaissance in Afghanistan, emphasizing adaptation to non-state threats to strengthen national defense holistically. Alan Vick (2002) in the RAND study *Snaring and Delaying Attacks on Air Bases* highlighted the vulnerability of air bases to missile attacks, so that airpower strategy must include active defense and asset dispersion to maintain readiness, a crucial issue for an archipelagic nation like Indonesia that relies on dispersed air bases.

In the Indonesian context, the Ministry of Defense's Archipelagic Defense Doctrine (2020) emphasizes the integration of airpower with maritime forces to protect the Exclusive Economic Zone (EEZ), but is hampered by budget and technological limitations (Indonesian Defense White Paper, 2015). According to the Indonesian Defense White Paper (2015), airpower must be a central element in Sishankamrata to achieve balance of power, although challenges such as the modernization of the Sukhoi and F-16 fleets hamper implementation, with recommendations for increasing the allocation to 1% of GDP. Andi Widjajanto (2018), a former Deputy Minister of Defense, in *Indonesia's Defense Strategy in the Indo-Pacific,* argues that Indonesia's airpower strategy should focus on "deterrence by denial" through a network of air bases on outer islands, integrating radar and drones to monitor asymmetric threats from non-state actors. Muhtadi (2020) from the Defense University in *the Defense Journal,* stated that the Archipelagic Defense Doctrine requires strategic leadership to overcome dimension fragmentation, where airpower can support maritime operations with air superiority, but limited technical human resources are the main obstacle.

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Thus, existing literature shows that strategic leadership, *airpower strategy* , and multidimensional threat dynamics are intertwined in shaping the direction of Indonesia's air defense policy. Visionary leadership is needed to ensure the integration of these three aspects to create an effective, adaptive, and highly deterrent air defense system.

Methodology

This study uses a qualitative approach with a phenomenological design to gain an in-depth understanding of the integration of strategic leadership and *Airpower strategy* in responding to threats. The phenomenological design was chosen because it is relevant in uncovering the meaning of the experiences of key actors, both policymakers and implementers of air defense strategies, regarding the phenomena they face in real life. Phenomenology allows researchers to capture the subjective perspectives of informants and interpret them within the conceptual framework of national defense (Creswell, 2014; Moustakas, 1994).

Data collection was conducted through three main techniques. First, semi-structured interviews with Indonesian Air Force officials, such as the Assistant Operations Chief of Staff of the Air Force, the Assistant Personnel Chief of Staff of the Air Force, the Commander of Halim Perdanakusuma Air Force Base, and other officials directly involved in the implementation of the *Airpower strategy* . The semi-structured interview technique was chosen to provide researchers with a guideline for questions, while still allowing informants to develop in-depth answers based on their experiences (Bryman, 2016). Second, field observations of *Airpower operational activities* were conducted to obtain empirical data related to the readiness of defense equipment, radar systems, and inter-agency coordination mechanisms. The observations were moderately participatory, with researchers present on-site without disrupting primary activities, resulting in a more naturalistic information collection (Silverman, 2021). Third, document studies included air defense regulations, the Ministry of Defense's annual reports, and Indonesian Air Force doctrines such as *Swa Bhuwana Paksa* and *Airpower Operational Procedures* . These documents served as the basis for triangulation, allowing primary data from interviews and observations to be verified.

Data analysis followed the interactive model of Miles, Huberman, and Saldana (2014), which includes three main stages: data condensation, data presentation, and conclusion drawing/verification. In the condensation stage, data from interviews, observations, and documents were filtered, categorized, and focused on relevant themes, such as strategic leadership, institutional coordination, and *Airpower technology modernization.* Data presentation was carried out by compiling findings in the form of analytical narratives, summary tables, and organized field

notes. Conclusions were drawn gradually by verifying initial findings through triangulation of sources and methods, thus ensuring data validity (Flick, 2018).

To maintain data validity, this study employed triangulation strategies, including both source and method triangulation. Source triangulation was conducted by comparing information from Indonesian Air Force officials, official documents, and field observations. Method triangulation was achieved by combining interviews, observations, and document studies. This approach aligns with the principles of integrity in contemporary qualitative research, which emphasize openness of interpretation without compromising analytical rigor (Nowell et al., 2017).

With this methodology, the research is expected to be able to produce a comprehensive picture of how strategic leadership is integrated with *Airpower strategy,* as well as how this integration can strengthen Indonesia's air defense system in facing threats.

Results and Discussion

The research findings demonstrate that the integration of strategic leadership and *airpower strategy* is a determining factor in building Indonesia's air defense resilience. Data obtained from interviews, field observations, and document studies indicate that the role of Indonesian Air Force leaders extends beyond decision-making to acting as catalysts in linking vision, policy, and operational implementation. This is crucial given the increasingly complex threats facing Indonesia, encompassing conventional military, cyber, electronic, and information aspects.

The discussion in this section focuses on how visionary strategic leadership can guide defense equipment modernization, drive organizational reform, and improve personnel readiness. Furthermore, the discussion highlights the importance of cross-institutional integration to strengthen intersectoral coordination, as well as the role of technological innovation in creating sustainable deterrence.

The following results and discussion will elaborate on the role of strategic leadership in four key dimensions: visionary leadership as a catalyst for *airpower modernization, cross-agency integration within the air defense system, technological innovation in addressing threats, and community engagement and a whole-of-government* approach . These four aspects complement each other and form the foundation for an adaptive, responsive, and highly deterrent Indonesian air defense strategy in the contemporary era.

1. Visionary Leadership as an Airpower Catalyst

Visionary strategic leadership is a key catalyst in the development and modernization of Indonesian *airpower.* Visionary leaders are not only capable of establishing long-term policy directions but also possess the ability to anticipate increasingly complex regional and global threats. In the context of air defense, this strategic vision is realized through the modernization of defense equipment, military organizational reform, and improving the quality of human resources. The doctrine of *effect deterrence* emphasizes that air superiority is a key factor in maintaining national sovereignty, thus visionary leadership plays a crucial role in ensuring air defense strategies remain relevant to current developments.

Defense equipment modernization is a concrete manifestation of visionary leadership. Indonesia is currently making a significant leap in strengthening its air force by acquiring 4.5-generation Rafale fighter jets from France and F-15EXs from the United States, which are planned to strengthen the Indonesian Air Force (TNI AU) over the next decade (Air Data News, 2024). This acquisition is not simply about increasing the number of aircraft, but rather about Indonesia's strategic repositioning to create regional deterrence. Visionary leadership encourages defense equipment procurement not merely as a symbol of power, but rather as part of a comprehensive strategy that integrates radar systems, *command and control* , and interoperability between platforms. Without a clear strategic vision, modernization programs have the potential to become bogged down in unsustainable acquisitions or acquisitions that are inappropriate for operational needs (Ministry of Defense, 2023).

Furthermore, visionary leadership plays a role in driving air defense organizational reform. Operational challenges in the era of threats demand a more flexible, adaptive organizational structure capable of responding quickly to cross-domain threats. Several studies show that modern air forces in various countries have adapted their organizations to integrate air, cyber, and space operations within a single unified command (IISS, 2022). Visionary strategic leadership ensures that the Indonesian Air Force (TNI-AU) not only increases conventional air power but also expands its capabilities toward *multi-domain operations* in line with technological developments.

Improving personnel readiness is also a crucial dimension that cannot be overlooked. Advanced technology will be ineffective without well-trained and adaptable personnel. Visionary leadership in this regard means emphasizing continuous training programs, cutting-edge technology-based education, and military leadership development at all levels. Personnel readiness, including digital competency, is a key indicator of the success of a modern air defense strategy. Indonesia needs to emulate these best practices by strengthening air defense military education institutions, increasing international training cooperation, and adopting digital simulation systems for air operations.

Thus, visionary strategic leadership serves as a catalyst that connects the three essential elements of defense equipment modernization, organizational reform, and personnel readiness into a single, comprehensive *airpower development framework* . This synergy between strategic vision and operational steps ensures Indonesia's ability to maintain air sovereignty amidst escalating threats. Visionary leadership not only builds deterrence *but* also forms the foundation for long-term air defense resilience.

2. Cross-Institutional Integration

Airpower cannot be managed solely by the Indonesian Air Force as a single actor, as its multidimensional nature demands cross-sector coordination. The complexity of air threats, ranging from territorial violations by foreign aircraft, the use of drones for espionage, cyberattacks on radar systems, to electronic warfare operations, demands close synergy between military institutions, civil government, the defense industry, and research institutions. Strategic leadership serves as a bridge, ensuring each actor can work within an integrative framework aligned with the national defense vision.

In Indonesia, cross-agency integration encompasses the Ministry of Defense as the macro policy maker, the Indonesian Air Force (TNI AU) as the operational implementer, the National Research and Innovation Agency (BRIN) as the technology research provider, and the national defense industry under the DEFEND ID *holding company* as the driving force for defense equipment production and modernization. This synergy is crucial in accelerating the adoption of defense technologies, from the development of passive radars to enhance detection capabilities, UAV systems capable of long-term surveillance in border areas, to *Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance* (C4ISR) systems that integrate cross-domain data. Without cross-agency coordination, modernization efforts risk being fragmented, slow, and inefficient (Ministry of Defense, 2023).

Strategic leadership within the Indonesian Air Force (TNI AU) demands managerial skills capable of building inter-agency communication, integrating diverse interests, and creating results-oriented cooperation mechanisms. Recent studies emphasize that the effectiveness of a country's air defense is often determined not by the number of fighter aircraft alone, but rather by the quality of coordination among TNI AU leaders, the actors that shape the air defense ecosystem. The experience of countries like South Korea demonstrates that collaboration between the Air Force, research institutions, and the defense industry has enabled the rapid and targeted adoption of drone technology and AI-based air defense systems (Kim, 2022).

In the Indonesian context, cross-agency integration also requires attention to inclusive and accountable policy governance. The Ministry of Defense plays a role in setting strategic priorities, but successful implementation depends on coordination with other ministries, such as the Ministry of Transportation regarding air traffic control and the National Civil Service Agency (BSSN) regarding cybersecurity in radar and communication systems. Strategic leadership is needed to ensure that synergy does not stop at the bureaucratic level but is realized in integrated policies that strengthen national *airpower.* Thus, cross-agency integration is a fundamental prerequisite for developing an effective, adaptive, and responsive air defense system to threats.

3. Technological Innovation in Airpower

Developments in global air defense technology demonstrate that innovation is a key element in maintaining air superiority. Strategic leaders play a crucial role as drivers in the adoption and integration of new technologies, such as artificial intelligence (AI), big data, advanced sensor systems, and cloud computing, into *airpower systems.* The use of AI and big data enables air surveillance systems to detect threats with greater speed and accuracy, while reducing the potential for human error in decision-making.

Technology-based modernization also aligns with the need to address the increasingly multi-layered nature of contemporary threats. Cyber warfare, electronic warfare, and the use of drones for intelligence missions and asymmetric attacks have become integral to the dynamics of modern conflict. Indonesia, as a country with extensive geographic vulnerabilities, requires a digitally connected air defense system capable of tracking cross-domain threats and boasting high interoperability with diverse defense equipment platforms.

Furthermore, technological innovation in *airpower* also includes the development of *unmanned aerial systems* (UAS) and *unmanned combat aerial vehicles* (UCAVs), which provide greater operational flexibility with lower personnel risk. Recent studies confirm that countries capable of integrating UAVs with their national air defense networks will have significant advantages in terms of resilience, deterrence, and power projection capabilities (Gilli & Gilli, 2023). An example of this implementation can be seen in Turkey's successful development of the Bayraktar TB2 drone and its use in various military operations, while simultaneously enhancing its strategic position on the international stage (Saygın, 2022). This practice provides valuable lessons for Indonesia regarding the importance of investing in domestic UAV research and production integrated with the national defense industry.

Visionary leadership must also ensure that technology-based modernization focuses not only on defense equipment procurement but also on building a supportive digital ecosystem. This includes cybersecurity in radar networks, the integration of encrypted communication systems, and the use of predictive algorithms to analyze threat patterns. Thus, strategic leadership that encourages technological innovation can make Indonesian *Airpower* more adaptive, responsive, and resilient in facing the challenges of modern warfare.

4. Community Participation and Whole of Government Approach

Air power is built not only through modernizing defense equipment and enhancing military capabilities, but also through consistent public support. *Airpower* is essentially a defense instrument that directly impacts civilian airspace, so its success is inextricably linked to public participation. Public education on the importance of airspace security is the first step in fostering collective awareness that defense is not solely a military matter but also a national responsibility. Public awareness of flight procedures, the use of civilian drones, and compliance with air regulations helps create a conducive environment for strengthening *airpower* (ICAO, 2022).

Furthermore, civil airspace surveillance is an integral part of national air defense. Many airspace violations stem from civil aviation not following *flight clearance procedures* or the use of commercial drones without official authorization. This is where strategic leadership must be able to extend the legitimacy of *airpower* into the civilian sphere by integrating relevant ministries, such as the Ministry of Transportation, the National Cyber and Crypto Agency (BSSN), and law enforcement agencies. This aligns with a *whole-of-government approach* that emphasizes cross-sector coordination in addressing threats.

Whole-of-government approach not only strengthens airspace surveillance but also builds public trust in defense policy. By involving civil society in the development of regulations, for example through public consultations or educational forums, the legitimacy of air defense policy will be strengthened. Furthermore, this participation also creates *social capital* that strengthens national resilience, especially when facing unconventional threats such as cyberattacks or disinformation campaigns targeting public opinion.

A whole-of-government approach can be seen in Singapore, where *its Total Defence Strategy* positions the public as one of the pillars of national defense. Public participation in the form of

cybersecurity literacy, regulations on the use of civilian UAVs, and private sector involvement in radar infrastructure development have created a more resilient air defense system (Chan, 2021). Indonesia can adapt similar practices by emphasizing cross-ministerial coordination, improving air security literacy, and active participation of the private sector and the public.

Thus, strategic leadership in the context of *airpower* is measured not only by the military's success in maintaining air sovereignty, but also by its ability to extend legitimacy to the civilian sphere. Through public education, inclusive aviation regulations, and integrated civil airspace oversight, *a whole-of-government approach* will strengthen the foundation of Indonesia's air defense in an era of threats.

5. Comparative Learning from Other Countries

Comparative studies show that successful *airpower development* is inextricably linked to the quality of strategic leadership capable of integrating long-term vision with technological innovation and cross-agency coordination. The United States, for example, through the *"Accelerate Change or Lose" doctrine* introduced by General Charles Q. Brown Jr., emphasizes the urgency of radical change to maintain air superiority amidst accelerating technological developments and multi-domain threat patterns (Brown, 2021). This doctrine emphasizes that visionary leadership must have the courage to undertake organizational transformation, accelerate technology acquisition, and reposition strategies to maintain air deterrence. This is an important lesson for Indonesia, where delays in organizational reform and defense equipment modernization can undermine the effectiveness of its *airpower strategy.*

South Korea demonstrates how synergy between the Air Force, defense industry, and research institutions can accelerate the mastery of UAV technology and artificial intelligence for air operations. Collaboration between the ROKAF, Korea Aerospace Industries (KAI), and national research centers enables the integration of UAVs into an adaptive and layered air defense system (Kim, 2022). For Indonesia, this model demonstrates that the roles of BRIN and DEFEND ID are not merely complementary but must be central to building a long-term defense innovation ecosystem.

Turkey serves as an example of how strategic leadership can transform limitations into strengths. Through strong government support, the domestic defense industry has successfully produced the Bayraktar TB2 and Akinci UCAV combat drones, which have proven effective in various international conflicts. This success positions Turkey as a new player in the global defense export market and enhances its national deterrence capacity. Indonesia can learn that without leadership oriented toward industrial self-sufficiency, *airpower modernization* will rely solely on expensive and unsustainable imports.

Singapore, on the other hand, demonstrates a *whole-of-government* and *whole-of-society* approach to building air deterrence. Through its *Total Defence strategy,* the government has successfully integrated civil society participation, civil aviation regulations, cybersecurity literacy, and private sector involvement into its air defense system. This approach emphasizes that *airpower's legitimacy* depends not only on military strength but also on collective public awareness and sustained public support for defense policies.

These four examples demonstrate that air superiority in modern nations is not solely determined by the number of fighter jets or technological sophistication, but rather by the integration of strategic leadership, domestic technological innovation, and cross-sector participation. For Indonesia, adaptation of these best practices must be tailored to the national geographic and political context, but the underlying principle remains the same: Effective *airpower* is the result of visionary leadership capable of uniting all national defense instruments within a comprehensive strategy.

From comparisons with several countries, it can be concluded that the integration of strategic leadership and *airpower strategy* is the main foundation for building effective air defense. The United States demonstrates the importance of visionary leadership in driving organizational reform and accelerating modernization. South Korea emphasizes the value of synergy between the military, industry, and research institutions as a driver of mastering new technologies. Turkey demonstrates that strategic leadership can transform domestic industry into a driving force for *airpower independence.* Singapore adds the dimension of *whole-of-government* and community participation as elements supporting the legitimacy of air defense.

These four examples demonstrate that air superiority is determined not only by sophisticated defense equipment, but also by the ability of strategic leadership to integrate all actors under a shared vision. For Indonesia, this comparative learning provides a crucial foundation for restructuring its *airpower strategy,* emphasizing visionary leadership, technological innovation, industrial independence, and public engagement within a comprehensive defense framework.

6. Learning from Other Countries: Relevance for Indonesia

The development *of airpower* in various countries demonstrates that air superiority is no longer solely determined by the strength of defense equipment, but rather by strategic leadership capable of integrating technology, organization, and society within a single defense framework. The experiences of both developed and developing countries demonstrate that effective air defense strategies are born from a combination of long-term vision, domestic innovation, and public engagement. For Indonesia, studying international best practices does not mean blindly copying, but rather identifying the most relevant elements for adaptation to the national context. By comparing leadership models and *airpower strategies* from other countries, Indonesia can formulate a sharper policy direction for strengthening air defense amidst escalating threats.

In the Indo-Pacific context, Indonesia's position between international trade routes, the South China Sea conflict zone, and the strategic axis of the Indian-Pacific Ocean makes strengthening *its airpower* an urgent need. Countries in the region, from China to Japan to Australia, have significantly increased their air defense investments. If Indonesia does not accelerate the modernization and integration of strategic leadership into its *airpower strategy* , the risk of losing its strategic advantage in regional airspace will increase. Therefore, studying international best practices does not mean blindly copying, but rather identifying the most relevant elements to adapt to national conditions. By comparing the leadership models and *airpower strategies* of other countries, Indonesia can formulate a sharper policy direction in strengthening its air defense amidst the escalation of threats.

Lessons from the United States emphasize that visionary leadership is essential for building adaptive *airpower. The "Accelerate Change or Lose" doctrine,* introduced by General Charles Q. Brown Jr., emphasized the importance of organizational reform and accelerated technology adoption to maintain air superiority (Brown, 2021). Indonesia cannot emulate the scale of US modernization, but the principles of acceleration and innovation can be adapted by emphasizing digital command systems, interoperability across the military, and developing an air doctrine responsive to Indo-Pacific dynamics.

South Korea offers a more realistic model for Indonesia through the integration of military, industry, and research. The synergy between the Republic of Korea Air Force (ROKAF), Korea Aerospace Industries (KAI), and national research institutions has accelerated the development of UAV and artificial intelligence technologies (Kim, 2022). Indonesia can adopt this model by optimizing the roles of BRIN and DEFEND ID in creating a robust research-industrial ecosystem. Without such synergy, *airpower modernization* will only result in long-term dependence on expensive and politically risky imported defense equipment.

Turkey demonstrates the importance of defense industry independence as a factor in sovereignty. The successful development of the Bayraktar TB2 drone and Akinci UCAV underscores the power of strategic leadership to transform resource limitations into a global competitive advantage. Indonesia needs to learn from Turkey that building *airpower* is not simply about operating foreign platforms; it must also encourage domestic innovation that can strengthen deterrence and open up defense export opportunities.

Singapore complements this lesson with a *Total Defense dimension* that involves both the public and the civil sector. This strategy successfully integrates air security literacy, civil UAV regulations, and private sector involvement in radar infrastructure development as part of defense legitimacy. Indonesia can emulate this approach by expanding public participation through drone literacy education, civil aviation regulations, and raising public awareness of the importance of national airspace surveillance.

Thus, combining best practices from other countries offers strategic direction for Indonesia. The United States' principles of accelerated reform, South Korea's research-industrial synergy, Turkey's industrial independence, and Singapore's *Total Defense* can be adapted to the national context. Integrating these four dimensions will enable Indonesia to build *an airpower* that is not only technically modern but also institutionally strong and socio-politically sustainable.

Strategic Conclusions and Recommendations

Conclusion

This research shows that Indonesia's air defense is at a strategic crossroads where threats demand close integration between strategic leadership and *Airpower strategy* . Visionary leadership has proven to be a key driver in ensuring the continuity of defense equipment modernization, organizational reform, and personnel professionalism. Without a clear long-term vision, the modernization program risks becoming merely a procurement project without a sustainable

strategic direction. Therefore, strategic leadership is not only defined as decision-making authority but also as the capacity to build a comprehensive, adaptive, and future-oriented defense narrative.

Cross-institutional integration also emerged as a key finding. The Indonesian Air Force (TNI AU) cannot manage *airpower* exclusively; it requires the support of the Ministry of Defense's policies, BRIN's research and innovation efforts, and the national defense industry under DEFEND ID. This coordination is crucial to avoid policy fragmentation, accelerate mastery of UAV technology, passive radar, and C4ISR systems, and ensure that every modernization step contributes to national deterrence. Institutional fragmentation, often a weakness in Indonesia's defense, can only be overcome through strategic leadership capable of bridging the interests of various actors.

Technological innovation is another inevitable dimension. Artificial intelligence, big data, and *unmanned systems* are now the new standards in *airpower development* . This research's findings confirm that the success of modern air defense is no longer determined solely by the number of fighter aircraft, but rather by how quickly defense systems can detect, analyze, and respond to cross-domain threats. Indonesia must move toward a new paradigm of digital air defense, where strategic leadership plays a facilitator role in fostering a domestic technology-based defense innovation ecosystem.

Public participation and *a whole-of-government approach* are key factors in determining *airpower's legitimacy.* Public awareness of airspace security, compliance with civil aviation regulations, and private sector involvement in supporting radar and communications infrastructure are integral to the national air defense system. Without strong socio-political support, *airpower* will be perceived as a purely military domain, even though modern air defense demands the involvement of all components of the nation. Strategic leadership plays a central role in extending this legitimacy to the civilian sphere.

Comparative learning from other countries reinforces the findings of this study. The United States demonstrates the importance of visionary leadership in anticipating change. South Korea demonstrates the effectiveness of military, industrial, and research synergy in mastering UAV technology. Turkey emphasizes the importance of defense industry independence as a foundation for *airpower* . Singapore provides a successful *whole-of-government example* that integrates civil society into defense strategy. These four practices demonstrate that sustainable air deterrence is built not only with sophisticated defense equipment, but with strategic leadership capable of integrating all defense instruments within a single national vision.

Thus, this study confirms that the integration of strategic leadership and *airpower strategy* is key to building an adaptive, responsive, and highly deterrent Indonesian air defense system. Indonesia needs to reimagine its air defense paradigm by emphasizing strategic vision, institutional synergy, technological independence, and community participation. Without such integration, *airpower* will struggle to address the challenges of threats in the contemporary era.

Strategic Recommendations

1. **Strengthening Visionary Leadership in Air Defense.** Indonesia needs to develop a cadre of military leaders who possess long-term vision, adapt to global dynamics, and are oriented towards technological transformation. Visionary leadership must be instilled from initial officer training up to the strategic level, through a curriculum that emphasizes geopolitical analysis, technological innovation, and cross-agency management. This way, strategic decision-making processes will not be merely reactive but proactive in building air deterrence.

2. **Enhanced Cross-Institutional Synergy.** Institutional fragmentation in *airpower development* must be addressed through a clear coordination mechanism between the Ministry of Defense, the Indonesian Air Force (TNI AU), BRIN (National Agency for Research and Innovation), DEFEND ID (Defendant ID), and related ministries. This synergy can be formalized through a presidential regulation that establishes the coordination structure for national air defense development. With a solid institutional framework, modernization policies and programs can run in harmony without overlap, while accelerating the adoption of strategic technologies.

3. **Developing Defense Technology Independence.** Reliance on imported defense equipment risks weakening long-term deterrence. Indonesia needs to encourage the national defense industry to shift from mere assembly to the development of UAV technology, passive radar, and AI-based C4ISR systems. The government can provide fiscal and regulatory incentives to accelerate technology transfer from foreign partners, while strengthening research collaboration with universities and the National Agency for Research and Innovation (BRIN). This way, air defense independence can be achieved sustainably.

4. **Air Defense Digital Transformation.** The modern era of warfare demands data-driven air defense capabilities. Indonesia must build a digital ecosystem that incorporates big data, predictive analytics, and an AI-based centralized command system. Implementing this *smart defense system* will increase the speed of detection and effectiveness of responses to multi-domain threats. Therefore, strategic leadership needs to encourage integration between military digital systems and civilian infrastructure to create robust interoperability.

5. **Strengthening Public Participation and Whole of Government Engagement.** Air sovereignty cannot be maintained solely by the Indonesian Air Force (TNI AU) but also requires support from the public and the civil sector. Regulations on civilian drone use, air safety literacy, and private sector involvement in radar infrastructure development must be expanded. A *whole-of-government approach* involving the Ministry of Transportation, the National Civil Service Agency (BSSN), and educational institutions can increase public legitimacy of the *Airpower strategy.* With public involvement, air defense will be more resilient to unconventional threats such as cyberattacks and disinformation.

6. **Adapting International Practices to the National Context.** Indonesia can learn from other countries that have successfully developed air defense, such as the visionary leadership of the United States, research-industrial synergy in South Korea, drone independence in Turkey, and public participation in Singapore. However, adaptations must be tailored to Indonesia's

geographic, political, and economic conditions. International best practices can serve as inspiration, but their implementation must be based on national needs to ensure a truly contextual and sustainable *airpower strategy.*

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