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Balancing Transparency and National Security in Defense Procurement: A Hybrid Model for Indonesia's Major Weapons Systems Acquisition

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Abstract: The procurement of major weapons systems in Indonesia presents a persistent policy dilemma between market-based transparency requirements and the strategic necessity of direct appointments for national security interests. This qualitative study employs a comparative approach integrating principal-agent theory, market failure analysis, and security economics to evaluate the effectiveness of competitive tendering versus direct appointment in Indonesian defense procurement. Analysis of regulatory frameworks, particularly Law No. 3/2002 and Presidential Regulation No. 46/2025, and procurement practices indicates that neither mechanism is universally superior. Competitive tendering can mitigate agency problems through supplier competition when qualified alternatives exist, but its effectiveness declines in oligopolistic defense markets characterized by information asymmetry and high entry barriers. Direct appointment supports urgent operational requirements and protects strategic information, yet increases risks of moral hazard, supplier dependency, and weak price verification, including potential cost overruns. This study proposes a hybrid procurement model that prioritizes competitive mechanisms for standardized and non-sensitive acquisitions while permitting direct appointment under clearly defined criteria, including confidentiality, high technology, operational urgency, interoperability, and limited supplier availability. Policy recommendations emphasize strengthening probity audit functions of the Government Internal Supervisory Apparatus and the Audit Board of the Republic of Indonesia, international price benchmarking, clearer confidentiality classifications, and mandatory cost transparency with independent oversight. This framework promotes risk-proportionate governance that balances public accountability with Indonesia's defense sovereignty.

Keywords: Balancing Transparency; Direct Appointment; Hybrid Model; Major Weapons Systems; Market Mechanism

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A. Introduction

The procurement of major weapon systems constitutes one of the strategic instruments for safeguarding national sovereignty and resilience. As part of state administration, defense equipment procurement is governed by Law No. 3 of 2002 on National Defense, which stipulates that national defense is organized to protect the sovereignty, territorial integrity, and safety of the Indonesian people. In this context, defense equipment procurement should not be viewed merely as a government expenditure activity, but rather as a strategic state instrument that must be aligned with national security interests. Therefore, the management of defense equipment procurement requires a balance between defense effectiveness, budgetary efficiency, and public accountability (Sarjito et al., 2024).

The defense equipment procurement process involves not only technical aspects of national defense but also economic, social, political, and governance considerations (Andalus & Djuyandi, 2023). The substantial defense budget, technological complexity, and involvement of domestic and international actors make defense equipment procurement particularly vulnerable to risks of inefficiency, information asymmetry, and irregularities. Accordingly, transparency in the procurement of defense goods and services is essential to ensuring accountability and the effective use of public resources in the defense sector (Kasim et al., 2022). Transparency is particularly important for promoting fairness and efficiency, as competitive bidding encourages multiple suppliers to participate, thereby reducing costs and improving quality (Sarjito, 2024).

From a regulatory perspective, defense equipment procurement falls within the scope of government procurement of goods and services and is governed by Presidential Regulation No. 46 of 2025 concerning the Second Amendment to Presidential Regulation No. 16 of 2018 on Government Procurement of Goods and Services. The regulation emphasizes that government procurement must be conducted in a transparent, open, and competitive manner. Nevertheless, it also provides exceptions for the defense and security sectors, particularly through direct appointment for goods and services that possess specific characteristics or are classified as confidential in order to safeguard the strategic interests of the state. This regulatory flexibility reflects the government's recognition that market mechanisms cannot always be fully applied to defense equipment procurement, given the sensitivity of information and the distinctive characteristics of defense-related goods and services.

In practice, the choice between market mechanisms and direct appointment in defense equipment procurement frequently generates public debate. The debate centers on which procurement method is more effective: market mechanisms through open tendering or direct appointment. From a technical perspective, market-based procurement through tendering offers advantages in achieving price efficiency and fairness among suppliers through healthy competition. Thai (2009) argues that market competition can promote fiscal efficiency through competitive bidding, encouraging suppliers to offer the best combination of price and quality. However, this mechanism

may also be considered impractical because tendering processes can be time-consuming and may expose the country's strategic defense requirements to public scrutiny. Direct appointment, by contrast, is generally more practical, faster, and more flexible, and can accommodate urgent strategic requirements, including weapons-system interoperability and defense relations between countries, particularly given the oligopolistic nature of the defense industry and its strong reliance on diplomatic relationships and government-to-government arrangements. Nevertheless, direct appointment has also attracted criticism because it may reduce transparency and competition while increasing the risks of inefficiency and conflicts of interest in the procurement of goods and services.

Despite the distinctive characteristics of these two procurement methods, an important question remains insufficiently addressed: under what circumstances can each mechanism be considered more effective in the context of Indonesian defense equipment procurement? This issue cannot be adequately addressed simply by determining whether one mechanism is more transparent or faster than the other. Procurement effectiveness needs to be assessed multidimensionally, taking into account price efficiency, accountability, supplier availability, information asymmetry, moral hazard risks, the level of confidentiality, operational urgency, interoperability, and national security interests. In other words, the central issue is not merely whether to choose tendering or direct appointment, but rather to determine which mechanism is most appropriate given the characteristics and risks associated with the specific defense requirement being procured.

Against this backdrop, this study is grounded in the integration of three analytical perspectives. First, principal-agent theory is employed to examine how information asymmetry, conflicts of interest, and moral hazard may arise in the relationship between the government as the principal and procurement officials and suppliers as agents (Jensen & Meckling, 1976). Second, the market failure perspective is used to explain why competitive mechanisms do not always produce optimal outcomes in a defense industry characterized by concentrated market structures, high barriers to entry, and highly specialized technologies (Stiglitz, 1989). Third, the security economics perspective is applied to examine the trade-offs between economic efficiency, transparency, the protection of strategic information, and national security requirements (Schneier, 2003). These three perspectives are employed complementarily to assess procurement effectiveness rather than to assume that either market mechanisms or direct appointment is inherently superior.

The novelty of this study lies in developing a comparative analysis that does not treat transparency and national security as two objectives that must necessarily be placed in absolute opposition. Instead, the study conceptualizes procurement effectiveness as a function of the alignment between the procurement method and the characteristics of the defense requirement. Market mechanisms are considered more appropriate when alternative suppliers are available, the level of confidentiality is relatively low, and competition can generate meaningful economic benefits. Conversely, direct appointment may be selectively justified when procurement

involves strategic requirements, advanced technologies, urgent operational needs, interoperability considerations, or limited supplier availability.

The contribution of this study is to provide an analytical foundation for developing more adaptive and risk-based governance of defense equipment procurement. Academically, the study brings together the perspectives of principal-agent theory, market failure, and security economics to evaluate the effectiveness of market mechanisms and direct appointment. From a policy perspective, the study proposes a framework that places open competition as the default for procurement conducted under competitive market conditions, allows a strategic exception for procurement that objectively requires direct appointment, and applies enhanced oversight to ensure that reduced competition does not result in diminished accountability.

Based on the foregoing discussion, this study seeks to address the dilemma between the demands for transparency and competition inherent in market mechanisms and the need for flexibility, speed, and protection of strategic interests through direct appointment. Accordingly, the research questions are: "How effective are market mechanisms and direct appointment in Indonesian defense equipment procurement when examined through the perspectives of principal-agent theory, market failure, and security economics? Furthermore, what procurement model can appropriately balance transparency, efficiency, accountability, and national security interests?"

B. Methods

This study employs a qualitative method with a comparative approach to analyze the effectiveness of two defense equipment procurement mechanisms, namely market-based procurement through open tendering and direct appointment. A qualitative approach was selected because the study focuses on understanding phenomena within their natural contexts and interpreting the meanings and processes underlying the phenomena under investigation (Denzin & Lincoln, 2018). Meanwhile, the comparative approach is employed to identify similarities and differences among the objects being compared and to determine the conditions that may explain variations in the effectiveness of each mechanism (Lijphart, 1971; Sugiyono, 2013). In this study, the comparative approach is used to assess the effectiveness of market mechanisms and direct appointment across several dimensions, including transparency, efficiency, accountability, and national security interests.

The object of the study is the policy and mechanisms governing defense equipment procurement in Indonesia, particularly procurement conducted through market mechanisms and direct appointment. The study does not involve respondents, as it constitutes library-based research relying primarily on secondary data. Data were obtained from various legal and regulatory documents, government policies, academic publications, reports from relevant institutions, and scholarly literature concerning defense procurement, transparency, procurement governance, and defense economics. A literature study essentially constitutes a series of research activities involving the collection, reading, recording, and processing of relevant

literature in accordance with the research problem under investigation (Zed, 2008). In this study, the primary legal sources include Law No. 3 of 2002 on National Defense and Presidential Regulation No. 46 of 2025 concerning the Second Amendment to Presidential Regulation No. 16 of 2018 on Government Procurement of Goods and Services. These two regulations are used to examine the normative foundations of defense equipment procurement and the legal scope for applying competitive mechanisms and direct appointment.

Data collection was conducted through the systematic identification and selection of literature relevant to the research focus, followed by the processes of reading, recording, classifying, and organizing information obtained from these sources (Zed, 2008). The collected literature was subsequently categorized according to the substantive issues addressed, including procurement regulations, competitive mechanisms, direct appointment, transparency and accountability, characteristics of the defense industry, and strategic procurement risks. This classification process was intended to establish a conceptual database that could serve as the foundation for the comparative analysis of the two procurement mechanisms.

Data analysis employed qualitative content analysis combined with a theory-informed comparative analysis. Qualitative data analysis was conducted through the stages of data condensation, data display, and conclusion drawing and verification, which were carried out interactively and continuously throughout the research process (Miles et al, 2014). In this study, the collected data were initially condensed through a process of selection and categorization based on the key research issues. The data were then presented in the form of analytical descriptions and comparative matrices to identify the characteristics, strengths, weaknesses, and risks associated with each procurement mechanism.

The comparative analysis examined market mechanisms and direct appointment across several dimensions, namely transparency, price efficiency, availability of price benchmarks, accountability, procurement speed, technology transfer, contribution to the domestic defense industry, compatibility with the characteristics of defense equipment, moral hazard risks, and market failure. These dimensions were selected in accordance with the characteristics of the research problem and the theoretical framework employed. A comparative approach enables the researcher to identify similarities and differences between the two mechanisms while also explaining the conditions under which one mechanism may be more or less effective in a particular context (Lijphart, 1971).

The findings were interpreted through three theoretical perspectives serving as analytical lenses*:* principal-agent theory, market failure theory, and security economics. The principal-agent perspective is used to examine the relationship between the government as the principal and procurement organizations and suppliers as agents, particularly in relation to information asymmetry, moral hazard, conflicts of interest, and the need for effective oversight. This perspective is relevant to the characteristics of agency relationships in public procurement, in which

implementing parties may possess greater information concerning costs, quality, and procurement processes than the parties delegating authority to them (Jensen & Meckling, 1976; Yukins, 2010). The market failure perspective is employed to examine the limitations of competitive mechanisms arising from market structures, limited supplier availability, barriers to entry, information asymmetry, and the distinctive characteristics of the defense industry (Bator, 1958; Stiglitz, 1989). Meanwhile, the security economics perspective is used to assess the trade-offs between resource constraints, efficient budget utilization, national security requirements, and strategic risks in defense procurement (Schneier, 2003; Al-Fadhat & Effendi, 2019).

These three perspectives are applied in a complementary manner to evaluate the effectiveness of market mechanisms and direct appointment. Principal-agent theory is used to identify agency risks and the need for oversight; market failure theory explains the structural limitations of competition within the defense industry; while security economics provides a framework for assessing the balance between economic efficiency and national security interests. Accordingly, the effectiveness of a procurement mechanism is not assessed solely on the basis of price or procurement speed, but also on its ability to generate value for money while simultaneously meeting national security requirements.

The final stage of the analysis involves synthesizing the comparative findings to formulate alternative procurement models capable of accommodating the distinct characteristics and requirements associated with different types of defense equipment. Based on the findings of the analysis, this study develops a hybrid procurement model that combines market mechanisms for standardized procurement with sufficient levels of competition and selective direct appointment for strategic requirements characterized by a high degree of confidentiality, urgency, interoperability considerations, or limited supplier availability. The proposed model is subsequently evaluated through the three analytical lenses to ensure that the policy recommendations take into account not only efficiency and transparency, but also agency risks, market failures, and national security interests.

C. Results and Discussion

The findings indicate that no single procurement mechanism is universally more effective across all types of defense equipment requirements. The effectiveness of market mechanisms and direct appointment is strongly influenced by the characteristics of the goods or weapon systems being procured, the structure of the supplier market, the level of information confidentiality, operational urgency, interoperability requirements, and the strategic objectives of the procurement. These findings are derived from a comparative analysis using three analytical lenses: principal-agent theory, market failure, and security economics. Taken together, these perspectives indicate that market mechanisms offer advantages in terms of transparency, competition, and price verification; however, their effectiveness may diminish when applied to oligopolistic defense markets and procurement involving highly complex technologies. Conversely, direct appointment provides greater

flexibility, speed, and protection of strategic information, but it may increase the risks of information asymmetry, moral hazard, and inefficiency when not accompanied by adequate oversight.

Principal-Agent Risks in Market-Based Procurement

Open tendering as a market-based mechanism essentially provides instruments for mitigating agency problems through competition among suppliers, documented evaluation standards, and transparency throughout the procurement process. Competition enables the principal to obtain comparative information on suppliers' prices, quality, and capabilities, while documentation of each procurement stage provides a basis for auditing and oversight. From a principal-agent perspective, these conditions can reduce the scope for agent discretion and strengthen the principal's ability to monitor the fulfillment of delegated mandates (Jensen & Meckling, 1976; Yukins, 2010). Thus, competition serves not only as an instrument for achieving price efficiency but also as a mechanism for controlling *agent* behavior. However, the analysis indicates that these functions do not always operate effectively in defense equipment procurement. The technical complexity and distinctive characteristics of defense technologies mean that suppliers often possess substantially more information than the principal. This condition creates information asymmetry that may constrain the government's ability to assess the reasonableness of specifications, quality, costs, and technologies offered by suppliers. Reykers & Fonck (2020) demonstrate that the complexity of fighter aircraft procurement can create opportunities for industry actors to influence procurement processes through their informational advantages and technical expertise. Similar conditions may arise in the procurement of defense equipment characterized by complex technical specifications and high levels of confidentiality.

Agency risks may also emerge as early as the specification-development stage. Suppliers possessing proprietary technology may occupy a strategic position from which they can influence specifications to align more closely with their existing products. Consequently, a tender that is formally competitive does not necessarily produce substantive competition when the initial specifications have already created an advantage for a particular supplier. Carril & Duggan (2018) show that consolidation within the defense industry can affect the structure of competition in government procurement. This finding demonstrates that the existence of formal tender procedures does not, by itself, eliminate agency problems.

The effectiveness of market mechanisms therefore depends heavily on the quality of procurement design and the principal's capacity to exercise effective oversight. Gálvez-Rodríguez et al. (2024) emphasize that the effectiveness of public procurement is increasingly shifting away from a lowest-price orientation toward a value-for-money approach, which simultaneously considers quality, transparency, fairness, and sustainability. In the context of defense equipment procurement, this principle means that competition should be designed not merely to secure the lowest possible price, but also to ensure technological quality, logistical support, interoperability,

technology transfer, and the long-term sustainability of weapon systems.

Accordingly, the findings indicate that market mechanisms can mitigate agency risks but cannot eliminate them. Competition is effective only when there is an adequate number of qualified suppliers, verifiable information, unbiased specifications, and sufficient government capacity to evaluate bids from both technical and economic perspectives. When these conditions are not met, tendering may generate competition that is procedural in form but limited in substantive terms (Tátrai et al., 2024).

Direct Appointment and Agency Risk

In contrast to market mechanisms, direct appointment reduces or, in some cases, eliminates competition among suppliers. This condition increases the agent's discretion and may widen the potential for information asymmetry between the government and suppliers. The absence of comparative price information can make it more difficult for the principal to determine whether prices are reasonable, while the more direct relationship between the government and suppliers may increase the risks of moral hazard, conflicts of interest, and cost mark-ups. Pyman et al. (2009) demonstrate that non-competitive defense procurement systematically increases the risk of corruption, primarily due to the lack of independent price benchmarks for assessing the reasonableness of a sole supplier's offer. Perlo-Freeman (2020) emphasizes that the absence of competition in arms procurement is a key indicator of corruption risk, which may result in cost overruns. Nevertheless, other literature suggests that direct appointment should not be viewed solely as an inefficient or non-transparent procurement mechanism. When only one or a limited number of suppliers possess the capability to provide a particular technology, open tendering may generate substantial transaction costs without delivering meaningful competitive benefits. This characteristic reflects the structural conditions of the defense industry, which is generally marked by high barriers to entry, highly specialized technologies, and a limited number of manufacturers.

Direct appointment also offers advantages in terms of speed and flexibility. For urgent defense requirements, lengthy tendering processes may increase the risk of delays in meeting operational needs. Direct appointment enables the government to secure supply with greater certainty and within a shorter timeframe. This becomes particularly relevant when procurement involves interoperability with existing weapon systems, urgent operational requirements, or defense cooperation between governments.

The experience of the United Kingdom demonstrates that the use of non-competitive procurement does not, in itself, eliminate the need for transparency and oversight. Brooke-Holland (2024) notes that the proportion of UK defense contracts awarded without competition remains significant. To manage the associated risks, the United Kingdom has developed a single-source procurement framework that incorporates mechanisms for regulating profit reasonableness, cost transparency, and oversight of non-competitive contracts. This approach demonstrates that transparency can still be

maintained even when market competition is unavailable.

Accordingly, the findings suggest that the central issue surrounding direct appointment does not lie solely in the use of a non-competitive mechanism, but rather in how the discretion arising from the absence of competition is effectively controlled. Strengthening probity audits, verifying price reasonableness, conducting price benchmarking, documenting procurement decisions, and establishing independent oversight are therefore important instruments for mitigating agency risks. This finding is consistent with Yanuarisa et al. (2025), who highlight the importance of effective internal auditing in supporting value for money in public procurement.

Market Failure in Defence Procurement

An analysis from the perspective of market failure indicates that the defense industry possesses characteristics that distinguish it from conventional competitive markets. The industry is characterized by a limited number of suppliers, extremely high capital and technological requirements, substantial barriers to entry, highly specialized technologies, and demand that is heavily dependent on government decisions. These conditions tend to produce oligopolistic market structures or, in the case of certain technologies, even monopolistic structures (Bator, 1958; Stiglitz, 1989).

As a consequence, the use of market mechanisms does not necessarily result in effective competition. In theory, open tendering enables the government to obtain multiple bids and select the alternative that offers the best value for money. However, when only a small number of suppliers meet the required technical specifications, the anticipated competition may be severely constrained. Tátrai et al. (2024) demonstrate that low participation in public procurement can be associated with market concentration, barriers to entry, and the complexity of procurement specifications. In the context of defense equipment, these factors become even more pronounced because of the highly specialized nature of defense technologies. Moreover, concentrated markets create opportunities for strategic supplier behavior, including collusion, bid rigging, and pricing practices that are difficult to verify when the government lacks adequate price benchmarks. (García Rodríguez et al., 2022) demonstrate that collusion in public procurement is a significant concern that can undermine the benefits of competition. Therefore, the mere existence of a tender does not automatically guarantee that the resulting price represents the most efficient market outcome.

On the other hand, direct appointment can be viewed as a form of government intervention designed to address specific forms of market failure. When the market structurally provides only a limited number of suppliers, the government may employ direct negotiations to obtain technologies, logistical support, technology transfer, or cooperation packages that may be difficult to secure through open competition. Indonesia–South Korea cooperation in submarine procurement, for example, demonstrates how defense procurement can be linked to technology transfer and the involvement of domestic industry, meaning that the value of a transaction cannot be

assessed solely on the basis of the number of units acquired (Ministry of Defense of the Republic of Indonesia, 2013). Nevertheless, such intervention can also generate new risks. Dependence on a single supplier may create a lock-in effect, whereby the government becomes increasingly constrained in switching to alternative suppliers because of its dependence on specific technologies, spare parts, maintenance systems, and logistical support. (Hellberg et al., 2025) demonstrate that a focus on short-term efficiency can generate long-term vulnerabilities when procurement results in excessive dependence on particular suppliers. These findings demonstrate that the two procurement mechanisms face different forms of market failure. Market mechanisms may fail when the industry structure is insufficiently competitive, whereas direct appointment may reinforce supplier concentration and dependency. Consequently, the choice of procurement mechanism should consider not only immediate transaction efficiency but also its longer-term implications for market structure, supply-chain resilience, and defense self-reliance.

Security Economics and Optimal Transparency

The security economics perspective introduces a distinct dimension for assessing procurement effectiveness. Defense equipment procurement cannot be evaluated solely based on the lowest price, as its ultimate objective is to generate defense capabilities that support deterrence, operational readiness, and national security. At the same time, state fiscal resources are inherently limited, requiring defense procurement to remain attentive to budgetary efficiency and the opportunity costs associated with other public needs (Al-Fadhat & Effendi, 2019).

Within this context, transparency presents a fundamental policy dilemma. Information disclosure is necessary to ensure accountability and prevent the misuse of public funds; however, the disclosure of certain technical information may expose the capabilities and vulnerabilities of weapon systems to external actors. Accordingly, the findings suggest that transparency in defense equipment procurement should not be understood as absolute openness, but rather as optimal transparency, a level of disclosure sufficient to ensure accountability without compromising national security interests. This approach is consistent with Transparency International Defence and Security (2024), which emphasizes the importance of a balancing test, proactive disclosure of non-sensitive information, and independent oversight. These three instruments enable governments to distinguish between information that genuinely needs to remain classified and information that should remain subject to public accountability.

The principle of optimal transparency also demonstrates that confidentiality should not be used as a blanket justification for withholding all procurement-related information. Information concerning specific combat capabilities may appropriately be restricted, while information regarding procurement procedures, the basis for decision-making, budgetary reasonableness, and oversight mechanisms can remain accessible to authorized oversight institutions within the scope of their respective mandates. The Open Government Partnership (n.d.) indicates that several countries

have developed defense-information categorization mechanisms to facilitate oversight without disclosing all sensitive information.

The implication is that direct appointment can be justified from a security economics perspective when the sensitivity of information, urgency of requirements, interoperability considerations, or limited supplier availability makes open competition impractical or strategically unreasonable. Conversely, market mechanisms are more appropriate for standardized, non-sensitive procurement involving alternative suppliers and posing limited risks of strategic information leakage.

Comparative Effectiveness of Market Mechanism and Direct Appointment

Based on these three perspectives, the study finds that the effectiveness of market mechanisms and direct appointment is fundamentally context-dependent. Market mechanisms offer greater advantages in terms of transparency, competition, access to comparative information, and public accountability. By contrast, direct appointment provides greater advantages in terms of speed, flexibility, protection of strategic information, and the ability to respond to urgent or highly specific requirements. However, each of these advantages is accompanied by inherent limitations. Market mechanisms may lose their effectiveness when the number of qualified suppliers is limited, technologies are highly specialized, and barriers to entry within the industry are substantial. Direct appointment, on the other hand, entails greater risks of moral hazard, cost mark-ups, supplier dependency, and weak price verification. Accordingly, the findings of this study provide no empirical basis for concluding that either mechanism is universally more effective than the other.

Table 1. Comparative Effectiveness of Market Mechanism and Direct Appointment

Aspect	Market Mechanism	Direct Appointment
Transparency	All stages are documented and subject to public audit.	Access is limited to authorized parties, creating a risk of *blanket secrecy*.
Price Efficiency	Competition among suppliers helps drive prices toward more efficient levels.	Potential for cost *mark-ups* in the absence of benchmarks; however, government-to-government negotiations may generate favorable terms.
Price Benchmark	Comparative price information is available from participating bidders.	The absence of competition makes it more difficult to verify price reasonableness.
Public Accountability	Information is relatively open and can be subject to oversight by the legislature, the Audit Board of the Republic of Indonesia (BPK), the Government Internal Supervisory Apparatus (APIP), and the general public.	Information is not generally open to the public, limiting public oversight. There is a risk of irregularities in the absence of a *probity audit* mechanism.
Procurement Speed	The tendering process can be relatively time-consuming.	Faster and more responsive to urgent requirements.

Aspect	Market Mechanism	Direct Appointment
Technology Transfer	Suppliers are not necessarily willing to provide technology transfer in an open tender context.	Technology transfer can be comprehensively negotiated as part of a *government-to-government* package.
Contribution to the Defense Industry	TKDN requirements can be imposed, but their effectiveness depends on domestic industrial capacity.	May include *offset* and *co-production* arrangements, although their success depends on the negotiation process.
Suitability for Defense Equipment Procurement	Procurement of spare parts, ammunition, uniforms, general logistics, and standardized defense equipment.	Strategic weapon systems, highly specialized high-end technologies, and urgent or highly confidential procurement.
Moral Hazard Risk	Competition can help reduce the risk of inefficiency.	Limited price benchmarks increase the risk of inefficiency.
Market Failure Risk	Oligopolistic markets, vendor *lock-in*, and prices that are not necessarily competitive.	Supply monopoly and long-term dependency (*lock-in effect*).

The matrix demonstrates that procurement effectiveness cannot be separated from the characteristics of the procurement object itself. The acquisition of spare parts, general equipment, logistics, standard operational vehicles, and other non-strategic requirements tends to be more appropriately conducted through market mechanisms. In contrast, strategic weapon systems, exclusive technologies, urgent requirements, or procurement involving significant interoperability considerations may require the use of direct appointment. These findings also broaden the understanding of value for money. Efficiency should not be interpreted solely as obtaining the lowest purchase price, but rather as encompassing considerations such as quality, life-cycle costs, the sustainability of logistical support, technology transfer, supply-chain resilience, and contributions to the national defense industry. This perspective is consistent with Gálvez-Rodríguez et al. (2024), who position value for money within a broader framework for evaluating public procurement.

Hybrid Procurement Model

Based on the comparative findings, this study proposes a hybrid procurement model as an approach better suited to the distinctive characteristics of defense equipment procurement. Rather than treating market mechanisms and direct appointment as mutually exclusive alternatives, the model positions them as policy instruments to be applied according to the characteristics and risk levels associated with each procurement requirement.

For procurement that is general in nature, involves multiple suppliers, has a relatively low level of confidentiality, and does not require specialized interoperability, market mechanisms should be the preferred option. Competition can be leveraged to secure better prices and quality while strengthening transparency and accountability. Conversely, direct appointment should be used selectively for procurement that meets specific strategic criteria, such as a high level of confidentiality, exclusive technologies, urgent operational requirements, interoperability with existing systems, or strategic

interests arising from international defense cooperation. This model is consistent with the approach adopted in the United Kingdom, which distinguishes between competitive procurement and single-source procurement. Brooke-Holland (2024) demonstrates that the distinctive characteristics of the defense sector mean that certain requirements cannot realistically be fulfilled through competitive procurement. Accordingly, the policy challenge is not to eliminate non-competitive procurement, but to ensure that such mechanisms operate within an adequate framework of oversight and cost control.

Geropoulos et al. (2024) likewise demonstrate the relevance of a hybrid approach that combines competition for standardized procurement categories with non-competitive flexibility for specialized requirements. In the Indonesian context, this approach can be translated into a procurement classification system based on factors such as the level of confidentiality, the number of global suppliers, operational urgency, interoperability requirements, technological complexity, and strategic significance. The hybrid model also requires a shift from uniform oversight toward risk-based oversight. Procurement conducted through open tendering can be monitored through information disclosure, process documentation, competitive procedures, and administrative audits. By contrast, direct appointment requires more intensive oversight through probity audits, independent assessments of price reasonableness, international price benchmarking, cost examinations, and stronger roles for the Government Internal Supervisory Apparatus (APIP) and the Audit Board of the Republic of Indonesia (BPK). This risk-based approach is consistent with Yanuarisa et al. (2025), who emphasize the importance of internal auditing in strengthening public procurement governance, as well as Suardi et al. (2024), who highlight the importance of institutional synergy in procurement oversight. Another important finding concerns the need for a clearer classification of defense-related information. Without measurable and well-defined classifications, national security considerations may be interpreted too broadly, potentially resulting in blanket secrecy. Confidentiality should therefore be limited to information whose disclosure would have genuine strategic consequences, while procedural aspects, the basis for procurement decisions, budgetary reasonableness, and oversight arrangements should remain subject to accountability to authorized oversight institutions.

Accordingly, the hybrid procurement model developed in this study rests on three core principles. First, competition by default for procurement characterized by competitive market conditions and low levels of sensitivity. Second, strategic exception for procurement that objectively requires direct appointment. Third, enhanced oversight to ensure that reduced competition does not result in diminished accountability. These three principles allow transparency and national security to be treated as complementary objectives rather than as inherently conflicting interests.

Overall, the findings demonstrate that the transparency dilemma in defense equipment procurement is not primarily a matter of choosing between market mechanisms and direct appointment. Rather, it concerns designing institutions and oversight mechanisms capable of aligning the procurement method with the level of

risk and strategic characteristics of each requirement. Market mechanisms are necessary when competition can generate efficiency and accountability, whereas direct appointment may be justified when security considerations, technological characteristics, operational urgency, or market structure make competition ineffective. In both circumstances, transparency remains essential; however, its scope and form of disclosure should be appropriately calibrated to national security interests.

D. Conclusions

This study concludes that no single defense procurement mechanism is universally effective. Its effectiveness depends on procurement characteristics, supplier market structure, information sensitivity, operational urgency, and strategic interests. An integrated analysis using principal-agent theory, market failure, and defense economics demonstrates that competitive mechanisms can mitigate agency problems when qualified suppliers and verifiable information are available, but their effectiveness declines in oligopolistic markets characterized by information asymmetry and high entry barriers. Conversely, direct appointment supports urgent operational requirements and strategic confidentiality but increases risks of moral hazard, cost overruns, supplier dependency, lock-in effects, and weak price verification. In Indonesia, these challenges are reinforced by regulatory flexibility, documented procurement failures, and growing public demands for transparency. The study's principal contribution is **a** hybrid procurement model based on three principles: competition by default for standardized acquisitions, strategic exceptions for clearly defined sensitive or urgent procurements, and strengthened oversight of non-competitive contracts. Policy implementation should proceed progressively. In the short term (2026–2027), the government should mandate international price benchmarking, strengthen specialized BPK and APIP oversight, and clarify confidentiality classifications. In the medium term (2028–2030), regulations should codify strategic-exception criteria, establish independent price-verification panels, and mandate post-procurement performance evaluations. In the long term (2031–2035), Indonesia should develop an integrated defense procurement white paper and institutionalize continuous benchmarking and international best-practice learning. The limitation of this study is that it relies on secondary data and examines procurement at the national policy level, limiting insight into regional and service-level variations. Future research should validate the hybrid model through primary interviews, develop quantitative effectiveness measures, compare ASEAN practices, and assess the effects of 2025 regulatory changes longitudinally. The model provides a risk-proportionate framework for balancing accountability, transparency, and defense sovereignty.

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F. Author Contributions

Okky Anugerah Sakti contributed to the design concept and implementation of the research, analysis of the results, and writing of the final manuscript. Guntur Eko Saputro and Sri Sundari were involved in planning and supervising the work, processed the data, performed the analysis, drafted the manuscript, and designed the figures. Sri Sundari developed the theory Guntur Eko Saputro verified this analytical method. Sri Sundari investigates and supervises the findings of this study. All authors discussed the results and contributed to the final manuscript.

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H. Data availability

All data generated or analysed during this study are included in this published article.

I. Declarations

Ethics approval and consent to participate

The study was approved by the Ethics Committee of the Universitas Pertahanan, West Java, Indonesia. No participants in this study.

J. Competing Interests

The authors declare no competing interests

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