

Research Article

Alliance Strategy Model Design on Defend ID in Creating Competitive Advantage in Indonesian Defence Industry

Edwin Adrian Sumantha^{1*}, Retno Kusumastuti Hardjono², Bernardus Yulianto Nugroho³

¹ University of Indonesia, Jakarta Pusat, Indonesia. Email: edwin.adrian@ui.ac.id

² University of Indonesia, Jakarta Pusat, Indonesia. Email: r.kusumastuti@ui.ac.id

³ University of Indonesia, Jakarta Pusat, Indonesia. Email: nugrohoyulianto@gmail.com

*Correspondence: edwin.adrian@ui.ac.id

Submitted: 11 July 2024 | Revised: 27 September 2024 | Accepted: 20 November 2024 | Published: 30 December 2024

Abstract: The Indonesian defence sector continues to encounter considerable obstacles in attaining a sustainable competitive advantage, despite concerted efforts by both the government and industry stakeholders. In response to these persistent challenges, the present study investigates the strategic significance of alliance strategy in strengthening competitive advantage within the Indonesian defence sector. Particular attention is given to the mediating influence of innovation capability and the moderating role of the regulatory environment. A quantitative methodology was adopted, utilising a 5-point Likert scale to gather responses from actors within the defence industry. Data collection was conducted through both physical distribution and digital platforms, including email and Google Forms, to ensure broad participation. A total of 170 completed questionnaires were obtained and employed for hypothesis testing. The findings reveal that alliance strategy positively impacts competitive advantage through the enhancement of innovation capability. However, the regulatory environment does not exhibit a moderating effect. This study offers both theoretical advancements and practical recommendations, supporting defence firms and policymakers in their pursuit of enduring competitiveness within a complex and evolving security landscape.

Keywords: Alliance Strategy, Competitive Advantage, Regulatory Environment, Innovation Capability, Defence Industry.

1. Introduction

The defence industry holds a critical position in upholding national sovereignty, sustaining economic resilience, and fostering technological advancement, particularly within the context of an increasingly complex global security landscape [1]. Similar to other nations, Indonesia considers the establishment of a robust, autonomous, and internationally competitive defence sector to be a matter of national importance [2]. Nevertheless, the Indonesian defence industry continues to encounter persistent barriers in its pursuit of sustainable competitive advantage [3]. Despite multiple initiatives, including the establishment of Defend ID, many firms within the sector remain hindered by operational inefficiencies, limited innovation capacity, reliance on foreign technologies, and an inadequate integration of strategic alliances. Consequently, although substantial efforts have been made to strengthen the national defence sector, various structural and strategic constraints persist.

A recurring and practical challenge involves the inability of Indonesian defence firms to capitalise on collaborative partnerships, or alliance strategies, to achieve a distinctive edge over regional and global competitors. In the context of the defence sector, such collaborations involve coordinated efforts among diverse stakeholders, including government agencies, military institutions, and private enterprises, aimed at attaining shared strategic objectives [4]. When formulated and executed effectively, strategic alliances are recognised for fostering innovation, facilitating knowledge exchange, and enhancing operational productivity [5]. However, many defence firms in Indonesia lack the organisational infrastructure, absorptive capacity, and innovation capabilities required to transform alliance strategies into tangible performance gains. According to this study, such alliances may take the form of joint research, technology sharing, co-production agreements, or broader strategic collaborations. In the absence of these capacities, firms demonstrate limited agility, fail to maximise technological potential, and respond inadequately to evolving market and security demands, thereby undermining their competitiveness. Strategic alliances, if properly leveraged, may mitigate several of these systemic issues.

Although alliance strategies have gained increasing prominence across global defence sectors [5; 6; 7], their utilisation within Indonesia remains relatively fragmented and insufficiently conceptualised. These strategies aim to enhance capabilities, reduce operational costs, and

stimulate innovation by pooling resources and knowledge. Nonetheless, the lack of a clearly articulated alliance strategy model tailored to the Indonesian context, particularly within the scope of Defend ID, has led to inconsistent implementation and missed opportunities in areas such as joint ventures, resource sharing, and collaborative development. This theoretical and practical gap forms the basis for the present study, which investigates the contribution of alliance strategies to the Indonesian defence sector. In the absence of a coherent framework, these strategies often fall short in generating long-term value or fostering innovation-led growth. To address this issue, the current study introduces innovation capability as a mediating factor between alliance strategy and competitive advantage.

Previous research has largely overlooked the mediating function of innovation capability. While alliances are generally assumed to contribute positively to organisational performance, the role of internal capacities, particularly innovation capability, has received limited attention. Although innovation capability has been extensively examined within the defence sector [8; 9; 10], its specific mediating role remains underexplored. The formation of strategic alliances alone is insufficient; firms must also cultivate internal mechanisms that enable effective knowledge absorption and application. Furthermore, the regulatory environment plays a critical role in advancing the defence sector. Although this aspect has been discussed in prior literature, its moderating influence on the relationship between alliance strategy and competitive advantage has not been examined. The disconnect between strategic design and expected outcomes highlights a broader issue of misalignment, where alliance strategies do not consistently translate into improved competitiveness. Therefore, this study seeks to examine the strategic role of alliance strategy in strengthening competitive advantage in the Indonesian defence sector, with particular emphasis on the mediating role of innovation capability and the moderating effect of the regulatory environment. Achieving this aim is expected to offer insights that can support the sector in enhancing its competitive position.

2. Theoretical Framework of the Study

The Resource-Based View (RBV) offers a robust theoretical framework for understanding the interconnections among alliance strategy, organisational capability, and competitive advantage. RBV

posits that a firm's sustained competitive advantage stems primarily from its possession and strategic utilisation of valuable, rare, inimitable, and non-substitutable internal resources, rather than solely from external market dynamics [11; 12; 13]. The theory underscores that a firm's ability to outperform competitors is contingent upon both the ownership and effective deployment of distinctive competencies and assets. In this context, alliance strategies serve as a critical means through which firms can access valuable external resources, including cutting-edge technologies, expert knowledge, and skilled personnel [7], all of which can be leveraged to strengthen competitive positioning.

Nevertheless, merely acquiring these external inputs is insufficient. Firms must develop internal capabilities—particularly organisational and innovation-oriented competencies—to assimilate and operationalise such resources effectively. Alliance strategy, as an intangible strategic

asset, constitutes a key internal resource that can be instrumental in achieving competitive advantage. These capabilities function as mediating mechanisms that convert alliance-based resources into superior organisational performance. Within this framework, innovation capability is also recognised as a vital internal resource that enhances a firm's competitiveness, in line with the core tenets of RBV [14]. Additionally, the regulatory environment may serve as a moderating factor, affecting the extent to which firms can access and utilise resources, or develop capabilities efficiently. Therefore, RBV supports the proposition that strategic alliances foster competitive advantage in the defence sector by enhancing organisational competencies, while external contextual factors, such as regulatory conditions, influence the strength of this relationship. As illustrated in Figure 1, the conceptual model developed in this study is firmly grounded in the RBV framework.

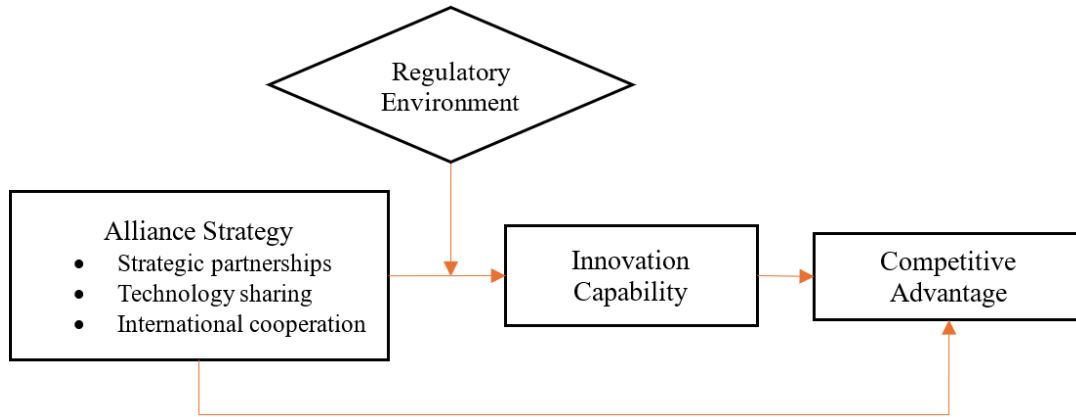


Figure 1: Theoretical Framework of the Study
Source: Developed by the Author

3. Literature Review

3.1 The Role of Alliance Strategy in Competitive Advantage

In an increasingly dynamic and competitive global landscape, organisations are progressively adopting alliance strategies as a means to bolster their market position and secure a competitive advantage [15]. A strategic alliance refers to a formalised collaboration between two or more independent entities aimed at achieving mutually defined objectives. Such strategies typically involve the joint utilisation of resources, competencies, or technologies to realise shared strategic goals [16]. Within the defence sector, where access to advanced technologies, cost-effectiveness, and continuous innovation are critical, these alliances hold particular strategic importance. Given the resource constraints facing the Indonesian defence industry, the integration of innovative technologies presents substantial challenges, thereby rendering alliance strategies especially vital.

Through alliance strategies, firms gain access to complementary assets, mitigate operational uncertainties, and expedite the development of products or services without shouldering the entire burden of innovation-related costs. These collaborations are designed to accomplish strategic outcomes that individual firms might find unattainable independently. Frequently, they involve the joint allocation of resources, shared risk, and mutual reward. Strategic partnerships also enable firms to expand into new markets, benefit from economies of scale, and enhance their knowledge base through cooperative learning [4]. Such partnerships play a pivotal role in organisational learning and capability enhancement, particularly when the collaboration involves technologically advanced or internationally experienced counterparts. As such, strategic partnerships are fundamental in advancing competitive strength within the defence sector. Therefore, alliance strategies transcend the role of simple cooperative arrangements; they represent essential components within a firm's strategic toolkit, enabling superior performance in complex, capital-intensive sectors such as defence.

H1: Alliance strategy has a positive effect on competitive advantage.

3.2 The Role of Alliance Strategy in Innovation Capability

Alliance strategy serves as a crucial mechanism for strengthening innovation capability across various sectors, particularly in technology-intensive and resource-demanding fields such as the defence industry [17]. Innovation capability refers to an organisation's ability to generate, refine, and implement novel ideas, products, services, or processes by

effectively harnessing knowledge, expertise, and technological assets [18]. This capability reflects the firm's capacity to translate innovative concepts into value-generating outputs. Within this framework, strategic alliances offer a vital pathway through which firms can access external sources of innovation, reduce the financial burden of research and development, and expedite product development cycles. In the context of the Indonesian defence sector, examining the link between alliance strategy and innovation capability is especially relevant, as the industry's progression is constrained without external collaboration and support from more technologically advanced nations.

Alliances facilitate collaboration with partners possessing complementary competencies, such as advanced technologies, industry-specific expertise, or in-depth market knowledge. However, such collaboration cannot yield effective results in the absence of robust innovation capabilities within the local defence industry. These partnerships promote resource sharing, knowledge exchange, and joint learning, all of which are essential for stimulating innovation [19]. The development of innovation capability in the defence sector is generally contingent upon the presence of well-structured strategic alliances. Such collaborations expose firms to diverse perspectives and novel practices stemming from varied organisational cultures, industrial backgrounds, or international contexts [16]. Cultivating innovation capability entails establishing the necessary skills, infrastructures, and processes to support continuous innovation and sustainable growth. In the Indonesian context, fostering innovation is imperative to reduce dependency on imported technologies and to promote the development of indigenous defence solutions. Innovation capability encompasses the generation and systematic evaluation of new ideas, as well as the implementation of structured innovation processes [20], which are often enabled through strategic partnerships. Engagements with global defence corporations, research institutes, or regional allies can help Indonesian firms bridge technological gaps and gain access to frontier innovations. In conclusion, alliance strategies function as key enablers of innovation capability, empowering organisations to remain adaptive, competitive, and technologically advanced amid increasingly volatile and complex operational environments.

H2: Alliance strategy has a positive effect on innovation capability.

3.3 The Role of Innovation Capability in Competitive Advantage

Innovation capability constitutes a fundamental element in achieving competitive advantage, particularly within the context of a rapidly evolving, technology-driven global marketplace [21]. It signifies an organisation's capacity to consistently generate and implement novel

products, services, processes, or business models that align with shifting customer demands and fluctuating market conditions. An organisational environment that encourages creativity, calculated risk-taking, and collaborative engagement is vital for fostering innovation. Firms equipped with robust innovation capabilities tend to exhibit greater adaptability and resilience, enabling them to distinguish themselves more effectively from their competitors. Empirical research, including that of Sulistyo and Ayuni [14], has demonstrated that innovation capability contributes positively to the attainment of competitive advantage.

Innovation within the defence sector enables firms to deliver unique value propositions [22], enhance operational effectiveness, lower production and development costs, and improve the overall experience for stakeholders. Technological innovation, in particular, introduces novel approaches to strengthening national security, offering a significant competitive edge that is often difficult for rivals to emulate. The advancement of defence technologies relies heavily on continuous innovation, making it an indispensable component of strategic development in the sector [23]. Given the critical importance of technological progress and strategic capability in the defence industry, innovation capability ensures that firms remain both responsive to evolving defence requirements and aligned with national security objectives. As such, robust mechanisms for the development and implementation of innovative solutions are essential to translate conceptual ideas into tangible outcomes. Innovation capability, therefore, extends beyond technological progress to encompass strategic renewal and the generation of long-term organisational value.

H3: Innovation capability has a positive effect on competitive advantage.

H4: Innovation capability mediates the relationship between alliance strategy and competitive advantage.

3.4 The Role of the Regulatory Environment between Alliance Strategy and Innovation Capability

The regulatory environment serves as a critical moderating factor influencing the relationship between alliance strategy and innovation capability. Government regulations, legal systems, and institutional policies can either facilitate or constrain the effectiveness of strategic collaborations aimed at fostering innovation. The term "regulatory environment" encompasses the legal statutes, policy directives, and administrative controls governing how firms operate within specific industries or jurisdictions [24]. In highly regulated sectors such as defence—where security concerns, compliance obligations, and export restrictions are paramount—these external conditions play a decisive role in determining how alliances are structured and implemented. This environment is particularly consequential in the Indonesian defence industry, where governmental policies regarding international partnerships have a direct impact on firms' ability to enhance innovation capability [25].

A supportive regulatory framework can significantly improve the effectiveness of collaborative ventures [26] by offering incentives such as tax relief, research funding, and streamlined procedures for joint initiatives or technology-sharing agreements. This framework consists of both the legislative infrastructure and the regulatory bodies responsible for enforcement, which together determine how businesses engage with

stakeholders, competitors, and regulatory constraints [27]. An enabling regulatory climate promotes international cooperation, reduces administrative burdens, and fosters mutual trust among alliance partners. Therefore, effective cross-border collaboration is largely dependent on the extent to which governmental policies support such engagements. Conversely, restrictive, ambiguous, or overly complex regulations may generate uncertainty, restrict access to foreign technologies, and dissuade firms from entering alliances due to legal risks or bureaucratic impediments. The general regulatory environment thus defines the parameters within which the defence industry functions and engages in external collaborations [24]. In the Indonesian context, transparent and proactive regulatory support is essential for promoting strategic alliances that strengthen indigenous innovation. Consequently, the regulatory environment can either serve as a key enabler or a substantial obstacle in converting alliance strategies into measurable innovation outcomes.

H5: Regulatory environment moderates the relationship between alliance strategy and innovation capability.

4. Method

This research adopted a quantitative methodology, which aligns appropriately with the study's objectives. A structured questionnaire survey was utilised as the primary tool for data collection. To investigate the relationships among alliance strategy, innovation capability, competitive advantage, and the moderating influence of the regulatory environment within the Indonesian defence sector, a cross-sectional research design was applied. The study hypotheses were examined through analysis of primary data obtained via the survey instrument. Data were collected using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Given that prior studies had not specifically explored the interplay among these variables within the context of the Indonesian defence industry, the present study developed a bespoke survey instrument. The measurement of alliance strategy was based on six items reflecting strategic partnerships, technology exchange, and international cooperation. Similarly, six items were employed to assess both innovation capability and competitive advantage. The regulatory environment was also measured using six items, which captured the perceived influence of governmental policy on organisational strategies within the defence sector. Table 1 presents the scale items developed and utilised in this study.

The survey was disseminated through both physical copies and online platforms, including email and Google Forms, to maximise respondent reach and data collection efficiency. Prior to full-scale distribution, a pilot test was conducted with 30 participants to assess the instrument's reliability and clarity. For the main data collection, purposive sampling was employed. As a non-probability sampling method, purposive sampling involves the deliberate selection of respondents based on predefined characteristics. Since the subject of strategic alliances pertains to a specialised domain, only individuals with relevant knowledge and experience were deemed suitable participants. Accordingly, the target respondents included senior managers, engineers, researchers, and policy officials from the defence industry. Out of 400 distributed questionnaires, a total of 170 valid responses were received and used for analysis.

Table 1: Variable Measures

Variable	Measures	Source
Competitive Advantage	1. Our organization offers superior defence products/services compared to competitors.	Developed by the Current Study
	2. We have a strong market position due to our unique capabilities.	
	3. Our cost efficiency provides us with a competitive edge.	
	4. We consistently outperform our competitors in terms of quality and innovation.	
	5. Our brand is well-recognized and trusted in the defence industry.	
	6. We maintain long-term relationships with key stakeholders due to our performance.	
Alliance Strategy	1. Our organization actively forms strategic alliances with domestic or international defence partners.	Developed by the Current Study
	2. We share resources and capabilities with our alliance partners to achieve mutual goals.	
	3. Alliance partnerships help us access new technologies and innovations.	
	4. We engage in joint research and development activities with our partners.	
	5. Our strategic alliances are guided by clear, long-term objectives.	
	6. Knowledge and experience gained from alliances are integrated into our operations.	
Innovation Capability	1. Our organization continuously invests in research and development activities.	Developed by the Current Study
	2. We are able to adapt and implement new technologies effectively.	
	3. Employees are encouraged to generate and share innovative ideas.	
	4. We regularly introduce new products, services, or solutions.	
	5. Our firm is quick to respond to technological changes in the defence sector.	
	6. We have structured processes in place to manage innovation projects.	
Regulatory Environment (Moderating Variable)	1. Government policies support strategic collaboration in the defence sector.	Developed by the Current Study
	2. Regulations facilitate knowledge and technology transfer between firms.	
	3. Our alliances benefit from government incentives and funding support.	
	4. The regulatory environment encourages innovation in defence manufacturing.	
	5. Policy frameworks are clear and promote international collaboration.	
	6. Regulatory compliance does not hinder alliance formation or innovation.	

5. Data Analysis

Table 2 presents the descriptive statistics derived from the dataset, including assessments of missing values, mean, median, outliers, and normality. These statistics were generated following a comprehensive data screening procedure. The data screening process encompassed

the identification of missing values, detection of outliers, and evaluation of the distributional characteristics to assess normality. A limited number of missing values were observed within the variables related to the regulatory environment and innovation capability. These were addressed using the mean substitution method. Apart from this, no significant data irregularities were identified.

Table 2: Data Statistics

	Mean	Median	Min	Max	SD	Kurtosis	Skewness
AS1	3.19	3	1	5	1.381	-1.169	-0.185
AS2	2.637	3	1	5	1.151	-0.701	1.177
AS3	3.157	3	1	5	0.954	-0.675	0.294
AS4	2.55	2	1	5	1.203	-0.871	0.32
AS5	3.263	3	1	5	0.997	-0.811	1.315
AS6	3.377	4	1	5	1.312	-1.166	-0.241
IC1	2.933	3	1	5	0.93	-1.101	-1.244
IC2	3.247	3	1	5	1.321	-1.115	-0.148
IC3	2.937	3	1	5	1.32	-1.076	-0.254
IC4	2.817	3	1	5	1.287	-1.022	-1.249
IC5	3.227	3	1	5	0.931	-0.915	-0.213
IC6	2.797	3	1	5	1.123	-0.6	0.294
RE1	2.803	3	1	5	1.11	-0.733	0.189
RE2	3.2	3	1	5	1.291	-0.969	-1.284
RE3	2.963	3	1	5	1.313	-1.03	-0.278
RE4	3.023	3	1	5	1.292	-0.974	-0.053
RE5	3.04	3	1	5	1.219	-0.846	-0.088
RE6	2.997	3	1	5	1.26	-0.949	-0.123
CA1	3.36	3	1	5	1.272	-0.963	-0.3
CA2	3.39	3	1	5	1.282	-0.989	-0.292
CA3	2.853	4	1	5	1.355	-1.135	-0.306
CA4	3.383	4	1	5	1.318	-1.092	-0.303
CA5	3.29	3	1	5	1.314	-1.049	-0.211
CA6	3.067	3	1	5	1.195	-0.844	-0.164

Note: AS = Alliance Strategy; CA = Competitive Advantage; CA = Innovation Capability; RE = Regulatory Environment.

Table 3 outlines the results from the initial phase of the structural equation modelling, specifically focusing on the assessment of individual item reliability. In accordance with established literature, factor loadings must exceed 0.5 to confirm the reliability of each measurement item used in the analysis [28; 29]. In the present study, all measurement items met

or exceeded the minimum acceptable threshold for factor loading. The majority of items demonstrated loadings above 0.7, indicating strong reliability. However, one item related to alliance strategy exhibited a factor loading below the acceptable level and was subsequently excluded from further analysis.

Table 3: Individual Item Reliability

Construct	Items	Questions	Level of Reliability
Alliance Strategy	AS2	We have a strong market position due to our unique capabilities.	0.822
	AS3	Our cost efficiency provides us with a competitive edge.	0.755
	AS4	We consistently outperform our competitors in terms of quality and innovation.	0.828
	AS5	Our brand is well-recognized and trusted in the defence industry.	0.815
	AS6	We maintain long-term relationships with key stakeholders due to our performance.	0.718
	Competitive Advantage	CA1	Our organization offers superior defence products/services compared to competitors.
CA2		We have a strong market position due to our unique capabilities.	0.89
CA3		Our cost efficiency provides us with a competitive edge.	0.921
CA4		We consistently outperform our competitors in terms of quality and innovation.	0.906
CA5		Our brand is well-recognized and trusted in the defence industry.	0.891
CA6		We maintain long-term relationships with key stakeholders due to our performance.	0.769
Innovation Capability	IC1	Our organization continuously invests in research and development activities.	0.884
	IC2	We can adapt and implement new technologies effectively.	0.902
	IC3	Employees are encouraged to generate and share innovative ideas.	0.899
	IC4	We regularly introduce new products, services, or solutions.	0.903
	IC5	Our firm is quick to respond to technological changes in the defence sector.	0.878
	IC6	We have structured processes in place to manage innovation projects.	0.565
Regulatory Environment (Moderating Variable)	RE1	Government policies support strategic collaboration in the defence sector.	0.647
	RE2	Regulations facilitate knowledge and technology transfer between firms.	0.853
	RE3	Our alliances benefit from government incentives and funding support.	0.855
	RE4	The regulatory environment encourages innovation in defence manufacturing.	0.856
	RE5	Policy frameworks are clear and promote international collaboration.	0.873
	RE6	Regulatory compliance does not hinder alliance formation or innovation.	0.844

Table 4 and Figure 2 were developed to assess construct reliability (CR) and convergent validity. In this study, construct reliability was evaluated using Cronbach's alpha, with a minimum threshold of 0.7, alongside composite reliability, which is also expected to exceed 0.7. As shown in Table 4, all reported values met the required standards, indicating acceptable reliability. Furthermore, convergent validity was

assessed through the average variance extracted (AVE), which must surpass 0.5 to be considered satisfactory [30; 31; 32]. The results confirmed that these conditions were fulfilled, thereby establishing convergent validity. This suggests that all measurement items for each construct exhibit strong inter-item correlations, confirming that they reliably reflect the intended latent variables.

Table 4: Construct Reliability and Validity

	Alpha	rho_A	CR	AVE
Alliance Strategy	0.852	0.876	0.891	0.622
Competitive Advantage	0.939	0.94	0.952	0.769
Innovation Capability	0.916	0.928	0.937	0.718
Regulatory Environment	0.904	0.911	0.927	0.681

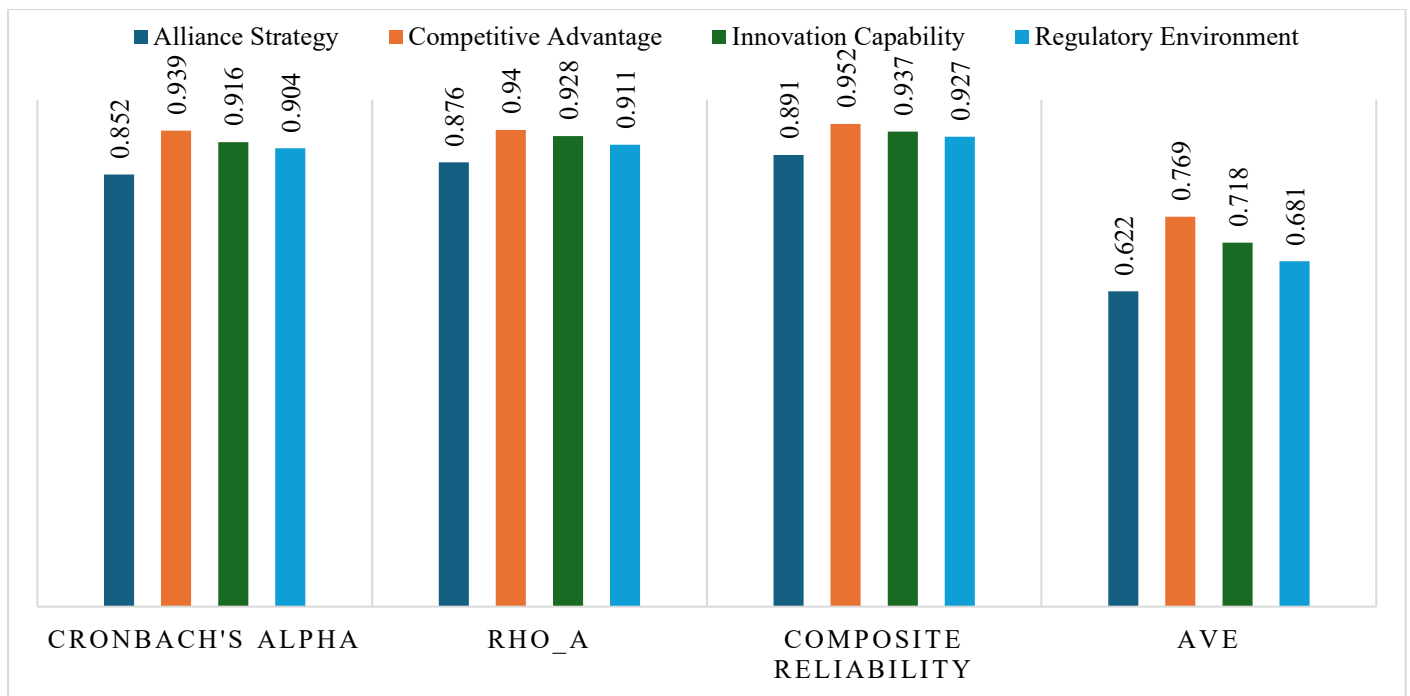


Figure 2: Construct Reliability and Validity

Discriminant validity was established through two analytical approaches: the square root of AVE (see Table 5) and cross-loading analysis (see Table 6), in line with accepted guidelines [33; 34]. The outcomes from both methods confirmed that the constructs measured were empirically distinct. Specifically, each item's association with its corresponding construct exceeded its correlations with other constructs,

thereby indicating adequate separation among variables. This lack of overlap demonstrates that the items used to measure each construct are unique and not interchangeable across constructs. As a result, the dataset is deemed suitable for subsequent analysis of the hypothesised relationships.

Table 5: AVE Square Root

	Alliance Strategy	Competitive Advantage	Innovation Capability	Regulatory Environment
Alliance Strategy	0.789			
Competitive Advantage	0.724	0.877		
Innovation Capability	0.722	0.814	0.847	
Regulatory Environment	0.713	0.806	0.802	0.825

Table 6: Cross-Loadings

	Alliance Strategy	Competitive Advantage	Innovation Capability	Regulatory Environment
AS2	0.822	0.505	0.489	0.499
AS3	0.755	0.47	0.427	0.435
AS4	0.828	0.492	0.446	0.504
AS5	0.815	0.502	0.447	0.488
AS6	0.718	0.711	0.628	0.634
CA1	0.637	0.876	0.707	0.721
CA2	0.659	0.89	0.698	0.692
CA3	0.642	0.921	0.743	0.732
CA4	0.591	0.906	0.725	0.706
CA5	0.64	0.891	0.721	0.7
CA6	0.635	0.769	0.685	0.683
IC1	0.663	0.739	0.884	0.725
IC2	0.64	0.737	0.902	0.717
IC3	0.636	0.698	0.899	0.692
IC4	0.633	0.714	0.903	0.704
IC5	0.656	0.697	0.878	0.677
IC6	0.399	0.526	0.565	0.539
RE1	0.453	0.5	0.546	0.647
RE2	0.612	0.723	0.729	0.853
RE3	0.582	0.737	0.716	0.855
RE4	0.625	0.646	0.641	0.856
RE5	0.613	0.687	0.664	0.873
RE6	0.63	0.666	0.653	0.844

Table 7 presents the findings from the hypothesis testing. The analysis focused on evaluating the relationships among alliance strategy, innovation capability, regulatory environment, and competitive advantage. To assess these associations, both t-values and beta coefficients were examined. The path from alliance strategy to innovation capability yielded a significant result, with a t-value of 7.906. Similarly, the effect of alliance strategy on competitive advantage was also statistically significant, recording a t-value of 6.572. Furthermore, innovation capability demonstrated a strong and positive influence on

competitive advantage, supported by a t-value of 15.073. These outcomes confirm that all three direct relationships are both positive and statistically significant. In contrast, the moderating effect of the regulatory environment on the relationship between alliance strategy and competitive advantage was found to be statistically insignificant, with a t-value of 1.544. However, the mediating role of innovation capability in the link between alliance strategy and competitive advantage was confirmed as significant, as reflected by a t-value of 7.077. Detailed results pertaining to the mediation analysis are presented in Table 8.

Table 7: Direct Effect and Moderation

	β	Mean	SD	T Statistics	P Values
Alliance Strategy -> Competitive Advantage	0.284	0.286	0.043	6.572	0
Alliance Strategy -> Innovation Capability	0.321	0.323	0.041	7.906	0
Innovation Capability -> Competitive Advantage	0.609	0.608	0.04	15.073	0
Moderating Effect 1 -> Innovation Capability	-0.076	-0.077	0.049	1.544	0.123

Table 8: Indirect Effect

	β	Mean	SD	T Statistics	P Values
Alliance Strategy -> Innovation Capability -> Competitive Advantage	0.195	0.196	0.028	7.077	0

6. Discussion

This study examined the interrelationships among alliance strategy, innovation capability, regulatory environment, and competitive advantage within the Indonesian defence sector. The primary objective was to investigate how alliance strategy and innovation capability contribute to enhancing competitive advantage. Five hypotheses were formulated, including three assessing direct effects: alliance strategy on innovation capability, alliance strategy on competitive advantage, and innovation capability on competitive advantage. Additionally, one hypothesis was developed to test the mediating role of innovation capability in the relationship between alliance strategy and competitive advantage, while another explored the moderating effect of the regulatory environment on the link between alliance strategy and innovation capability.

The empirical findings confirm that alliance strategy exerts a significant positive influence on both innovation capability and competitive advantage in Indonesia's defence industry. These results suggest that strengthening alliance strategies can directly improve the innovation capacity of domestic defence firms. Conversely, limited engagement in strategic alliances may hinder the industry's ability to innovate effectively. Strategic alliances enable access to advanced technologies, international expertise, and global standards, which are often challenging to cultivate internally. In a technologically advanced and competitive era, securing such resources through international partnerships becomes essential. Previous research has similarly identified a strong link between alliance strategies and innovation outcomes [6; 7; 35]. Moreover, this study demonstrates that alliance strategy contributes not only directly to competitive advantage but also indirectly through the enhancement of innovation capability. The presence of both direct and indirect effects reinforces the argument that innovation serves as a key transmission mechanism through which strategic alliances influence competitiveness. The direct impact of alliance strategy on competitive advantage aligns with earlier findings [36; 37], underscoring the importance of international collaboration, joint research initiatives, and co-development in strengthening domestic capabilities. Such partnerships enable the local adaptation of foreign technologies and foster innovation through shared knowledge and co-creation efforts.

Furthermore, the study confirmed a direct positive relationship between innovation capability and competitive advantage. For firms operating in the Indonesian defence industry, innovation capability is critical for reducing reliance on imported technologies and promoting self-sufficiency in defence solutions. These findings are consistent with existing literature that recognises innovation capability as a significant contributor to competitive advantage across various sectors [38; 39]. Finally, the investigation into the moderating role of the regulatory environment revealed that it does not significantly influence the relationship between alliance strategy and competitive advantage. This outcome diverges from existing research, likely due to contextual differences in regulatory frameworks. The limited regulatory oversight and involvement of the Indonesian government in the defence sector may explain its minimal moderating effect, thereby reducing its influence on firms' strategic activities.

7. Conclusion

In an era characterised by rapid technological advancement, defence firms are under mounting pressure to modernise operations, reduce reliance on foreign technologies, and develop indigenous capabilities. Within this context, strategic alliances represent a valuable mechanism for acquiring essential resources, facilitating knowledge exchange, and accelerating innovation processes. The success of such alliances, however, largely depends on a firm's capacity to assimilate and utilise external knowledge effectively. Innovation capability serves as the essential intermediary linking strategic collaboration with the achievement of sustained competitive advantage. Consequently,

fostering innovation capability through alliance strategies plays a pivotal role in the modernisation of defence systems and the enhancement of competitive positioning within the industry. Conversely, the anticipated moderating effect of the regulatory environment on the relationship between alliance strategy and innovation capability was not supported by the findings. This indicates that regulatory structures do not significantly shape or enhance the impact of alliance strategies on innovation within the current setting. The lack of influence may reflect inherent limitations within the Indonesian regulatory framework, which appears to be either overly rigid, weakly enforced, or insufficiently tailored to promote innovation through strategic partnerships. The absence of targeted incentives, policy clarity, and institutional support may prevent regulations from effectively guiding firms toward innovation-led outcomes via alliances.

7.1 Implications, Limitations and Recommendations for Future Studies

The relationships explored in this study offer meaningful implications for the Indonesian defence industry. Specifically, the findings provide practical insights for policymakers seeking to strengthen national defence capabilities. The results underscore the importance of establishing regulatory frameworks that are clearly defined, supportive, and conducive to innovation, particularly those aimed at facilitating strategic alliances involving technology transfer and joint research and development (R&D). Encouraging R&D initiatives through alliance strategies is essential for the adoption of advanced technologies. To this end, policymakers are encouraged to reduce administrative hurdles and introduce incentive mechanisms such as tax relief, research grants, and expedited approval procedures to promote effective collaboration between domestic and international defence organisations. These policy measures can enhance innovation capability, which in turn can be fostered through strategic alliances. Strengthening both alliance strategy and innovation capability offers a pathway for achieving sustained competitive advantage and reinforcing Indonesia's defence sector.

Although the current study contributes significantly to both theoretical understanding and practical policy in the field of defence industry development, certain limitations must be acknowledged. The research employed a quantitative, survey-based approach, which, while effective for hypothesis testing, may not fully capture the intricate nature of alliance dynamics or the complexities involved in innovation processes. Future research would benefit from incorporating qualitative methods, such as interviews or case studies, to provide deeper contextual insights. Moreover, this study is focused exclusively on the Indonesian defence industry, which may restrict the broader applicability of its findings to contexts with differing regulatory systems or strategic priorities. As such, future investigations are encouraged to adopt a comparative approach by examining similar relationships across defence industries in other developing nations. This would enhance the practical relevance of the findings and provide a more comprehensive understanding of how different environmental contexts shape the interplay between alliance strategies, innovation capability, and competitive advantage.

References

- [1] Kurç Ç, & Bitzinger RA. Defense industries in the 21st century: A comparative analysis—The second e-workshop. Taylor & Francis; 2018. p. 255-259. <https://doi.org/10.1080/01495933.2018.1497318>
- [2] Wulandari A, Perwita AAB, & Hadisancoko RE. The Role of Defense Diplomacy to Enhance Defense Industry in Developing Countries: Case Study of Indonesia and India Cooperation. JURNAL SYNTAX IMPERATIF: Jurnal Ilmu Sosial dan Pendidikan. 2024;5(4):606-613. <https://doi.org/10.36418/syntaximperatif.v5i4.453>
- [3] Saputra RM, Somantri GR, & Subroto A. The Niche Model of Defense Industry Analysis: Seeking the Sufficiency of Indonesia's

- Needs Main Equipment and Weaponery System (Alutsista). *Mandala: Jurnal Ilmu Hubungan Internasional*. 2024;7(1):77-87 <https://doi.org/10.33822/mihi.v7i1.8038>
- [4] Lubis LA, Perwita AAB, & Hadisancoko RE. Strategic Partnerships for Defense Industry Advancement in Developing Nations: Case Studies of Indonesia and Malaysia. *JURNAL SYNTAX IMPERATIF: Jurnal Ilmu Sosial dan Pendidikan*. 2024;5(4):577-584 <https://doi.org/10.36418/syntaximperatif.v5i4.443>
- [5] Mazda CN, Perdana YR, & Jupriyanto, editors. *The Alliance Strategy in Supply Chain Management of Indonesia's Defense Industry 2024*; Cham: Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-80341-3_7
- [6] Chen X, Yang Y, & Wei J. How do New Ventures Thrive in Ecosystem Venturing: The Impacts of Alliance Strategy and Technology Interdependence. *Journal of Management Studies*. 2024;62(2):565-596. Doi: <https://doi.org/10.1111/joms.13063>
- [7] Galloway TL, Miller DR, Sahaym A, & Arthurs JD. Exploring the innovation strategies of young firms: Corporate venture capital and venture capital impact on alliance innovation strategy. *Journal of Business Research*. 2017;71:55-65. Doi: <https://doi.org/10.1016/j.jbusres.2016.10.017>
- [8] Börjesson S, & Elmquist M. Aiming at innovation: a case study of innovation capabilities in the Swedish defence industry. *International Journal of Business Innovation and Research*. 2012;6(2):188. Doi: <https://doi.org/10.1504/ijbir.2012.045636>
- [9] Hmyria V, Kostiuk O, Fedoryshyna L, Halaburda M, & Zahrebelnyi D. Innovations in the defense-industrial complex: current status and development prospects. *Naukovyi Visnyk Natsionalnoho Hirnychoho Universytetu*. 2025(1):125-131. Doi: <https://doi.org/10.33271/nvnqu/2025-1/125>
- [10] Pukhova MM, Merkulina IA, & Bashkov DY. Developing Public-Private Partnership Projects to Enhance Innovation Capability in the Defence Industry. *Economies*. 2021;9(4):147. Doi: <https://doi.org/10.3390/economies9040147>
- [11] Aragón-Correa JA, & Sharma S. A Contingent Resource-Based View of Proactive Corporate Environmental Strategy. *Academy of Management Review*. 2003;28(1):71-88. Doi: <https://doi.org/10.5465/amr.2003.8925233>
- [12] Malhotra G, Dandotiya G, Shaiwalini S, Khan A, & Homechaudhuri S. Benchmarking for organisational competitiveness: a resource-based view perspective. *Benchmarking: An International Journal*. 2024;32(3):943-964. Doi: <https://doi.org/10.1108/bj-09-2023-0668>
- [13] Sukaatmadja IPG, Yasa NNK, Rahyuda H, Setini M, & Dharmanegara IBA. Competitive advantage to enhance internationalization and marketing performance woodcraft industry: A perspective of resource-based view theory. *Journal of Project Management*. 2021:45-56. Doi: <https://doi.org/10.5267/j.jpm.2020.9.002>
- [14] Sulisty H, & Ayuni S. Competitive advantages of SMEs: The roles of innovation capability, entrepreneurial orientation, and social capital. *Contaduría y Administración*. 2019;65(1):156. Doi: <https://doi.org/10.22201/fca.24488410e.2020.1983>
- [15] Issah O. Supplier Resource Dependence, Value Creation and Competitive Advantage: The moderating role of Supply Chain Collaboration and Strategic Alliance. *International Journal of Supply Chain and Logistics*. 2025;9(1):45-68. Doi: <https://doi.org/10.47941/ijsci.2456>
- [16] Grant RM, & Baden-Fuller C. A Knowledge Accessing Theory of Strategic Alliances. *Journal of Management Studies*. 2003;41(1):61-84. Doi: <https://doi.org/10.1111/j.1467-6486.2004.00421.x>
- [17] Zahoor N, Al-Tabbaa O, & Khan Z. R&D alliances and SMEs post-entry internationalization speed: The impact of alliance management capability and co-innovation ambidexterity. *Global Strategy Journal*. 2023;13(2):315-348. Doi: <https://doi.org/10.1002/gqsj.1481>
- [18] Diharto AK, Budiyo, & Muafi. causality model of people equity, VRIN resource, social capital, innovation capability and SMEs performance. *Journal of Business & Retail Management Research*. 2017;11(4):124-130. Doi: <https://doi.org/10.24052/ibrmr/v11is04/cmopevrscicasp>
- [19] Kamalrulzaman NI, Azlinzuraini A, Akmalia Mohamad A, & Mohd Shaladdin M. Innovation Capabilities and Performance of Malaysian Agricultural SMEs: The Moderating Role of Strategic Alliance. *International Journal of Business and Society*. 2021;22(2):675-695. Doi: <https://doi.org/10.33736/ijbs.3751.2021>
- [20] Pongsathornwiwat A, Jeenanunta C, Huynh V-N, & Udomvitid K. How collaborative routines improve dynamic innovation capability and performance in tourism industry? A path-dependent learning model. *Asia Pacific Journal of Tourism Research*. 2019;24(4):281-295. Doi: <https://doi.org/10.1080/10941665.2018.1564341>
- [21] Puspita L, Christiananta B, & Ellitan L. The Effect Of Strategic Orientation, Supply Chain Capability, Innovation Capability On Competitive Advantage And Performance Of Furniture Retailers. *International Journal of Scientific & Technology Research*. 2020;9(3):4521-4529 <https://www.researchgate.net/publication/340804972>
- [22] Blom M, Castellacci F, & Fevolden AM. The trade-off between innovation and defense industrial policy: A simulation model analysis of the Norwegian defense industry. *Technological Forecasting and Social Change*. 2013;80(8):1579-1592. Doi: <https://doi.org/10.1016/j.techfore.2013.01.005>
- [23] Hwang DJ. The Role of Defense Industry in Innovation and the Development of Dual-Use Technology. *Korean Journal of Defense Analysis*. 1996;8(1):153-176. Doi: <https://doi.org/10.1080/10163279609464332>
- [24] Fliot D. Reducing the Environmental Footprint? Competition and Regulation in the Greening of Europe's Defense Sector. *Organization & Environment*. 2014;27(3):263-278. Doi: <https://doi.org/10.1177/1086026614528807>
- [25] Marsudiyanto A, Subroto A, Brodjonegoro BPS, & Ghafur AHS. Defense Budget Gaps and Legal Implications of Alternative Financing in Indonesia: A Legal Reform Perspective. *Journal of Law and Legal Reform*. 2024;5(4):1543-1574. Doi: <https://doi.org/10.15294/ijlr.v5i4.18076>
- [26] Adam IO, Alhassan MD, & Afriyie Y. What drives global B2C E-commerce? An analysis of the effect of ICT access, human resource development and regulatory environment. *Technology Analysis & Strategic Management*. 2020;32(7):835-850. Doi: <https://doi.org/10.1080/09537325.2020.1714579>
- [27] Noll RG. *Regulatory policy and the social sciences: University of California Press*; 2021. <https://search.worldcat.org/title/1153015147>
- [28] Ma H, Khan AJ, Fayyaz S, Hameed WU, & Ullah H. Unpacking the optimistic mindset of business students towards entrepreneurship. *PLOS ONE*. 2024;19(2):e0297868. Doi: <https://doi.org/10.1371/journal.pone.0297868>
- [29] Hair Jr JF, Black WC, Babin BJ, & Anderson RE. *Multivariate Data Analysis*. 7th ed 2010. <https://www.drnishikantjha.com/papersCollection/Multivariate%20Data%20Analysis.pdf>
- [30] Cheah J-H, Sarstedt M, Ringle CM, Ramayah T, & Ting H. Convergent validity assessment of formatively measured constructs in PLS-SEM. *International Journal of Contemporary Hospitality Management*. 2018;30(11):3192-3210. Doi: <https://doi.org/10.1108/ijchm-10-2017-0649>
- [31] Henseler J, Dijkstra TK, Sarstedt M, Ringle CM, Diamantopoulos A, Straub DW, Ketchen DJ, Hair JF, Hult GTM, & Calantone RJ. Common Beliefs and Reality About PLS. *Organizational Research Methods*. 2014;17(2):182-209. Doi: <https://doi.org/10.1177/1094428114526928>
- [32] Ringle CMS, Marko; Straub, Detmar. A critical look at the use of PLS-SEM in MIS Quarterly. *MIS Quarterly*. 2012;36(1) <https://ssrn.com/abstract=2176426>
- [33] Edeh E, Lo W-J, & Khojasteh J. Review of Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R: A Workbook: By Joseph F. Hair Jr., G. Tomas M. Hult, Christian M. Ringle, Marko Sarstedt, Nicholas P. Danks, Soumya Ray. Cham, Switzerland: Springer,(2021). 197 pp. 0,OpenAccess; 59.99, Hardcover Book. 2023 <https://www.tandfonline.com/doi/full/10.1080/10705511.2022.2108813>
- [34] Henseler J, Ringle CM, & Sarstedt M. A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*. 2015;43(1):115-135. Doi: <https://doi.org/10.1007/s11747-014-0403-8>
- [35] Islam M, Hossain AT, & Mia L. Role of strategic alliance and innovation on organizational sustainability. *Benchmarking: An International Journal*. 2018;25(5):1581-1596. Doi: <https://doi.org/10.1108/bj-12-2016-0188>
- [36] Setyadi T, Oetomo HW, Khuzaini K, & Suwito S. The Influence of Strategic Alliance on Competitive Advantage through Market Area and Product Innovation. *International Journal of Business Administration*. 2017;8(7):57. Doi: <https://doi.org/10.5430/ijba.v8n7p57>
- [37] Syaifuddin S. Understanding the Dynamics of Collaboration and Partnerships: A Qualitative Inquiry into Enhancing Competitiveness through Strategic Alliances and Business Networks. *Golden Ratio of Marketing and Applied Psychology of Business*. 2024;5(1):110-120. Doi: <https://doi.org/10.52970/grmapb.v5i1.66>
- [38] Canbul A, & Çemberci M. Innovation capability as key to competitive advantage: Relation of product innovation capability, process innovation capability, and firm performance. *Journal of International Trade, Logistics and Law*. 2023;9(1):134-142 <https://www.ijital.org/index.php/ijital/article/view/345>
- [39] Ferreira J, Cardim S, & Coelho A. Dynamic Capabilities and Mediating Effects of Innovation on the Competitive Advantage and Firm's Performance: the Moderating Role of Organizational Learning Capability. *Journal of the Knowledge Economy*. 2020;12(2):620-644. Doi: <https://doi.org/10.1007/s13132-020-00655-z>