Indonesian Naval Technology College
Postgraduate International Conference, Vol. 8, No. 1, pp. 1-12
June, 27th 2024

IDENTIFICATION OF IMPACT FACTORS MINIMUM ESSENTIAL FORCE (MEF) ACHIEVEMENT OF INDONESIAN NAVY ON THE STRATEGIC ENVIRONMENT IN THE NORTH NATUNA MARINE AREA

Arda Widyaksa[1], Okol Sri Suharyo[2], Joko Purnomo[3],April Kukuh Susilo [4]

Indonesian Naval Technology College,
Bumimoro-Morokrembangan, Surabaya 60187, Indonesia

ABSTRACT

This research focuses on evaluating the current status of the Indonesian Navy's Minimum Essential Force (MEF) in the North Natuna Sea area. This research aims to evaluate the progress of the Indonesian Navy's Minimum Essential Force (MEF) initiative, focusing specifically on its impact within the North Natuna Sea region. Utilizing a qualitative descriptive statistical approach the research using the Delphi Method to support its analysis. The impact of achieving the MEF is dissected into three main criteria: Deterrent Effect, Bargaining Power, and Maritime Security Threat. The research identified 4 sub-factors for both Deterrent Effect and Bargaining Power, and 6 sub-factors for Maritime Security Threat, all determined through consensus among expert panelists.

Keyword : Minimum Essential Force (MEF), Impact, Delphi

1. Introduction

Territorial disputes in the South China Sea (SCS) remain a significant security challenge within the ASEAN region due to conflicting claims. The SCS spans approximately 3 million km², bordered by China and Taiwan to the north, several Southeast Asian nations to the west, the Philippines to the east, and Kalimantan, Indonesia, to the south. This maritime region is surrounded by ten countries, including Brunei Darussalam, Cambodia, China, Indonesia, Malaysia, the Philippines, Singapore, Taiwan, Thailand, and Vietnam (Schofield et al, 2016).

Since 2010. Indonesia has been increasingly involved in the SCS disputes after China extended its claim to the northern region of the Natuna Islands in the Riau Islands Province, an area within Indonesia's Exclusive Economic Zone (EEZ). China justifies its claim by citing historical fishing rights (Dugis et al, 2018). The potential for conflict in the SCS raises concerns that the Natuna Sea and its vicinity could become a battleground for contesting nations and major powers with interests in the SCS. Consequently, it is imperative for the Indonesian Navy to maintain a state of readiness to safeguard territorial sovereignty over the Natuna waters should disputes escalate into armed conflict (Utomo et al., 2017). Marsetio (2014) emphasizes the importance of consistently strengthening the Indonesian Navy in line with the national defense policy, the Minimum Essential Force (MEF), to prepare for such eventualities.

If Indonesia fails to meet the objectives of the Minimum Essential Force (MEF), the country could face several risks, including: a) Increased threats to the sovereignty and territorial integrity of the Republic of Indonesia, potentially destabilizing national security; b) Obstacles in achieving the national development goals related to national defense; c) Diminished bargaining power of the Indonesian government in international diplomacy, leading to decreased influence in the international community; d) A failure to develop the primary components of the MEF could weaken national defense deterrence capabilities in the region; e) A decline in the nation's competitiveness index, affecting its standing in the international environment; f) A reduction in the Indonesian National Armed Forces' (TNI) ability to perform its primary duties.

This research aims to evaluate the progress of the Indonesian Navy's Minimum Essential Force (MEF) initiative, focusing specifically on its impact within the North Natuna Sea region. Utilizing a qualitative methodology grounded in 3D modeling, the research seeks to scrutinize the current state of MEF achievements and strategize its future development. The significance of impact assessment in this context is underscored by its ability to grant researchers the opportunity to identify and analyze factors critical to the MEF's success. This research endeavors to contribute to the field of defense management by offering insights into the handling of territorial disputes through impact assessment. Furthermore, this research employs a qualitative descriptive statistical approach, enriched by theories on Competitive Dynamics, Deterrent Effect, and Maritime Security Threats.

This research offers multiple contributions. Firstly, it advances research on the Defense Force by evaluating the impact of Minimum Essential Force (MEF) development, analyzed through various lenses including Bargaining Power in diplomacy (Harry & Nugraha et al, 2017), Deterrence effect (Chadhafi et al, 2021), and the Capability to address maritime security threats (Andalus & Djuyandi, 2022). Secondly, it establishes Confidence-Building Measures (CBMs) as both a deterrence mechanism against threats and a strategic guide for shaping defense posture policies (Santiko & Agustien et al, 2022). Thirdly, this research acts as a follow-up on the recommendations by Kaya & Kahraman (2011), aiming to assess environmental impacts employing alternative methodologies.

2. Methodology

2.1 Competitive dynamics.

Dynamic competition theory, which emerged in the 1980s within the strategic management field, emphasizes the interplay of attack and counterattack actions among firms (Chen & Miller, 2012). Chen (2009) posits that competition forms the core of strategic considerations, encapsulating a dynamic process involving actions and reactions by companies. This interplay underscores a dependency relationship, wherein a company's competitive standing is vulnerable to its rivals' defensive or offensive strategies (Chen & Miller, 2012). Competitive dynamics encompass the entire spectrum of competitive behaviors, meaning all actions and reactions executed by firms within a market context. Importantly, the actions and reactions of firms are deeply interdependent, with their strategic moves significantly affecting their performance (Woo et al., 2021).

As outlined in the research, the theory of competitive dynamics serves as a tool for competitors to assess the ramifications of their actions and reactions within the competitive landscape. It has a notable impact on organizational activities concerning the responses of rivals and overall organizational performance. The theory suggests that the influence on organizational activities, particularly the degree to which an organization either repetitively mirrors past actions or selectively incorporates new strategies into its strategic framework, is a critical consideration (Baskoro, 2017).

2.2 Impact Assessment

Since the enactment of the National Environmental Policy Act of 1969 (NEPA) in the United States, the theory and practice of impact assessment have evolved significantly (Pope et al., 2013). Impact assessment is a systematic process designed to evaluate the effectiveness, relevance, and sustainability of an organization's current and future actions and initiatives. Its primary goal is to delineate the relationships among an organization's inputs, outputs, and outcomes, aiding organizations in making well-informed programmatic and institutional choices.

The International Association for Impact Assessment (IAIA) outlines four key objectives of impact assessments: a) To comprehend the potential impacts of proposed actions, changes, or interventions, and to prepare for addressing both positive and negative consequences; b) To foster accountability towards a wide range of stakeholders, including shareholders, employees, donors, partners, customers, volunteers, and beneficiaries; c) To identify necessary procedures and methodologies for future policy development, planning, and project cycles; d) To facilitate decisions that are environmentally, socially, and economically sustainable, thereby supporting organizational growth and development (Bond & Pope, 2012).

Expanding on these foundations, our paper introduces varied perspectives on the current state and future directions of impact assessment within the context of defense management strategy. We present our insights into the current advancements in impact assessment, the forthcoming challenges, and potential research directions aimed at enhancing the role of impact assessment in fostering sustainable development through informed decision-making. This research specifically addresses the impact of achieving Minimum Essential Force (MEF) based on three impact criteria: Deterrent effect (D), Bargaining power (B), and Threat to maritime security (T).

2.3 Minimum Essential Force (MEF)

Indonesia initiated the Minimum Essential Force (MEF) target as a strategic response to its defense requirements, constrained by a limited defense budget (Kennedy et al, 2023). The MEF is aligned with the government's Nawacita vision and mission, which focuses on ensuring national security and contributing to global peace. It aims to enhance Indonesia's defense capabilities to effectively address the evolving strategic environment and to deter both internal and external, as well as traditional and non-traditional threats (Santiko & Agustien, 2022).

The MEF development was structured into three phases: Phase I from 2010 to 2014. Phase II from 2014 to 2019, and Phase III from 2019 to 2024. The completion rates of the MEF development programs and activities were recorded at 52.33% for Phase I, 59.69% for Phase II, and 68.9% for Phase III. The primary goal of the MEF initiative is not to incite an arms race or to achieve superiority for total warfare. Instead, it is meticulously designed to elevate the country's defense forces to a more optimal standard, ensuring they are capable of exerting a deterrent effect, thus contributing to national and regional stability (Ervin et al, 2022).

2.4 Delphi Method

The Delphi method was developed by Derlkey and his associates at the Rand Corporation, California in the 1960s. The Delphi method is a method that harmonizes the communication process of a group so that an effective process is achieved in obtaining solutions to complex problems. The Delphi method in another definition is the process of involving a group in an interaction between researchers and experts who are selected based on background and criteria that are relevant to a special topic of discussion using a questionnaire (Yousuf, 2007).

The Delphi method aims to reach consensus from a series of information mining processes. In carrying out the Delphi method, opinions and judgment from experts and practitioners are needed (Widiasih et al, 2015). In carrying out the Delphi method, opinions and judgment from experts and practitioners are needed. Some characteristics of the Delphi method (Yousuf, 2007):

a. Anonymous use of questionnaires or other communications i.e. responses are otherwise not identified as being from a particular member of the panel which allows for anonymity.

b. Control feedback from interaction (controlled feedback), control feedback allows interaction with reduced disagreement between panel members. Interactions that occur are possible from interactions

between group members in several stages with the results of the previous stage being summarized and group members asked to evaluate their answers compared to groupthink.

c. Statistical group response, group opinion is defined as the statistical average of the final opinions of each member with the opinion of each group member reflected in the final group response.

The Delphi method is designed to achieve consensus through a systematic process of gathering and distilling the opinions and judgments of experts and practitioners (Widiasih et al, 2015). It is particularly valued in decision-making processes for its ability to solicit and refine the most credible insights among a group of decision-makers or experts. The method aims to facilitate a convergence of opinions by narrowing down the spectrum of judgments, importantly doing so in a manner that avoids the biases and errors typically associated with direct, face-to-face interactions (Ahmad et al., 2021; Zio & Maretti, 2015). In this study, a panel of 15 experts was engaged to oversee and participate in the rounds of Delphi questionnaires (Flostrand et al., 2020; Ribeiro et al., 2021).

The feedback process for each round of questionnaires usually requires two to three iterations to gather comprehensive feedback from the panel, with each round spanning an average of two weeks. The process is concluded once consensus among the panel members is achieved. This consensus is determined based on statistical measures such as mean, median, standard deviation, and interquartile range aligning with the predetermined objectives of the Delphi method (Widiasih et al., 2015). According to Karakikes & Nathanail (2020), the Delphi process comprises three primary steps:

The first questionnaire was sent to the expert panelists to ask for some opinions (from experience or judgment), some predictions and recommendations. In the second round, a recap of the results of the first questionnaire was sent to each expert panelist to be able to re-evaluate their first assessment on the questionnaire using the set criteria. In the third round, the questionnaire was sent back with information on the panelists' ratings and the consensus results. The panelists were again asked to revise their opinions or explain the reasons for disagreeing with the group consensus.

The use of the Delphi method preceded the AHP approach for the following reasons: 1) The Delphi method is based on the subjective opinions of respondents, so that it can formulate the overall objective or criteria that are revealed more flexibly; 2) The results of the Delphi approach have not been tested for consistency of answers, so the AHP method complements the proposed procedure for testing the consistency of individual and group opinions and weighting the priority of the importance of each criterion/objective.

In this study, the Delphi method was used to identify factors related to the impact of MEF achievement. In the identification of factors, the Delphi method was used for up to three rounds.

2.5 Content Validity Indeks (CVI)

The Content Validity Index (CVI) stands as a pivotal method for assessing the validity of an instrument's content, widely recognized for its application in various research domains. It quantifies the degree to which experts agree on the relevance or representativeness of an instrument's items, offering insights into its content validity both at the item level (Item-level CVI or I-CVI) and across the entire instrument (Instrument-level CVI). The calculation of CVI is underpinned by expert evaluations of each item, based on its content relevance or representativeness (Almanasreh et al., 2018).

In exploring factors that influence a panel's consensus on Minimum Essential Force (MEF) attainment in a given domain (during a Delphi round), both means and standard deviations are computed to gauge factor

convergence. The assessment of each objective's importance by an expert panel is facilitated through a 5-point Likert scale (Stancine et al., 2019). To assess content validity, the research employs both the item-level content validity index (I-CVI) and the scale-level average content validity index (S-CVI/Ave). The S-CVI/Ave is determined by dividing the sum of I-CVI scores by the number of items. An S-CVI/Ave of ≥0.8 is considered acceptable, whereas an S-CVI/Ave of ≥0.90 denotes excellent overall content validity. The I-CVI, on the other hand, is calculated as the number of experts rating an item ≥3 divided by the total number of experts, with an I-CVI of ≥0.78 being acceptable (Almohanna et al., 2022). Literature suggests that for a new assessment instrument to be considered valid, it should achieve a total CVI of ≥0.90 or 90% and an I-CVI of ≥0.78 or 78% (Marisa, 2021).

In this particular instance, the S-CVI/Universe method was not employed due to the large size of the expert panel, which could potentially skew results towards unacceptable levels. Additionally, this approach does not account for the possibility of chance agreement among experts (Roya & Behrooz, 2017) emphasizing the method's reliance on expert consensus without adjustments for randomness in responses.

3. Result and Discussion

In this section, the Delphi Methodology is applied in assessing the impact of achieving MEF. The Delphi method is a method that harmonizes the communication process of a group so that an effective process is achieved in obtaining solutions to complex problems. The Delphi method in another definition is the process of involving a group in an interaction between researchers and experts who are selected based on background and criteria that are relevant to a special topic of discussion using a questionnaire (Yousuf, 2007).

3.1 Result

The Delphi survey questionnaire needs to be designed in such a way as to obtain information regarding the objectives or criteria for each round of the survey. All panelists acted in high-level leadership or professional positions of expertise, which may increase the internal validity of the study (Toppinen et al., 2018). The number of panels is kept simple to reduce complexity, this is because the purpose of the Delphi method is not to explain phenomena based on statistical variance, but to offer a fairly broad and varied quality of responses and allow management to categorize and consolidate responses (Nyström & Kaartemo, 2022). None of them suggested changing any themes or indicators (Lakmini et al., 2023).

This section elaborates on the systematic approach undertaken to finalize the impact factors from three principal aspects: Deterrence Effect, Bargaining Power, and Threat to Maritime Security. Given the stringent criteria, this research engaged a panel of 15 maritime field experts to partake in a Delphi survey. The design of the Delphi survey questionnaire was critical to garner insights about the objectives or criteria in each survey round. All panelists, comprising 12 practitioners at the maritime manager level and 3 academics specializing in maritime defense, completed three survey rounds. The result of this stage is the identification of key impact assessment factors.

Round 1: The initial round involved distributing a Google Form questionnaire to the 15 expert panelists. This questionnaire outlined the research and its objectives and included three variable dimensions: 8 items on the deterrence effect, 8 on bargaining power, and 19 on maritime security threats. Utilizing a Likert scale of 1-5 for assessments, the estimated completion time was between 10-15 minutes. The analysis revealed that all dimensions were crucial for constructing the assessment tool, as evidenced by the average importance rating of each dimension being above 3 (mean). Item-CVI scores ranged from 0.40 to 1. validating all items. The set

achieved an S-CVI of 85% (≥0.8 is acceptable) and an I-CVI of 87% (I-CVI ≥0.78 is acceptable), with no suggestions for theme or indicator modifications (Lakmini et al., 2023). The first round led to the elimination of 3 deterrence effect items, 2 bargaining power items, and 3 maritime security threat items, narrowing down from 25 to 18 items.

Round 2: Two weeks later, the second round asked experts to assess the CVI of the remaining 18 items across the three dimensions. Item-CVI ranged from 0.67 to 1. again validating all items with a 1-5 Likert scale and maintaining the 10-15 minute completion estimate. This round achieved an S-CVI of 85% and an I-CVI of 81%, reaffirming the fundamental nature of all dimensions, as the average importance rating of each remained above 3. This round resulted in the removal of 4 items related to sub-factors (Economic Resources, Population Size and Market Potential, Wealth of Natural Resources, Geopolitical Dynamics), reducing the item count to 14.

Round 3: After reformulating, the instrument underwent a third evaluation round to assess final validity. The consensus was nearly unanimous, with the I-CVI value at 1 for almost all items, indicating 100% agreement among experts. This resulted in an impressive S-CVI of 98%. Given the very good I-CVI values, this round effectively completed the instrument's overall validity phase, negating the need for further evaluation. All items fell into valid or very valid categories, achieving consensus in the Delphi process.

Table 6 Summarizes the progression and outcomes of expert opinions across rounds 1. 2. and 3. detailing the methodical refinement and validation of the instrument items through expert consensus.

Tabel 1. Results of collecting expert opinions in rounds 1,2 and 3

No	Dimension	Item	Round 1			Round 2			Round 3		
			Mean	CVI	Result	Mean	CVI	Result	Mean	CVI	Result
1	**Deterrencce Effect**	Military Capability	4,40	0,93	Acceptep	4,40	0,93	Acceptep	4,47	1,00	Acceptep
2		Nuclear Deterrence	3,80	0,80	Acceptep	3,80	0,80	Acceptep	4,00	1,00	Acceptep
3		Effective Communication	3,60	0,60	Rejected						
4		Credible Leadership	4,33	0,93	Acceptep	4,33	0,93	Acceptep	4,33	1,00	Acceptep
5		Alliances and Coalitions	4,67	0,93	Acceptep	4,67	0,93	Acceptep	4,73	0,93	Acceptep
6		Negotiation	3,73	0,73	Rejected						
7		Enemy Perceptions and Calculations	3,93	0,67	Rejected						
8		Economic Resources	3,80	0,80	Acceptep						
9	**Bargaining Power**	Economic power	3,80	0,80	Acceptep	3,73	0,73	Rejected			
10		Political Influence	4,20	0,93	Acceptep	3,80	0,80	Acceptep	0,40	1,00	Acceptep
11		Aliances International	4,47	0,93	Acceptep	4,20	0,93	Acceptep	0,54	1,00	Acceptep
12		Diplomatic Skills	4,40	0,93	Acceptep	4,47	0,93	Acceptep	0,50	0,93	Acceptep
13		International Laws and Norms	3,20	0,47	Rejected						
14		Population Size and Market Potential	3,80	0,80	Acceptep	4,40	0,93	Acceptep	0,61	0,93	Acceptep
15		Geopolitical Significance	3,60	0,60	Rejected	3,73	0,73	Rejected			

No	Dimension	Item	Round 1			Round 2			Round 3		
			Mean	CVI	Result	Mean	CVI	Result	Mean	CVI	Result
16		Wealth Natural Resources	4,13	0,80	Acceptep	4,00	0,73	Rejected			
17	**Threat Maritime Security**	Territorial Disputes	4,27	1,00	Acceptep	4,27	1,00	Acceptep	4,27	1,00	Acceptep
18		Piracy	4,33	1,00	Acceptep	4,33	1,00	Acceptep	4,33	1,00	Acceptep
19		Terrorism	4,27	1,00	Acceptep	4,27	1,00	Acceptep	4,27	1,00	Acceptep
20		Illegal Fishing	4,13	1,00	Acceptep	4,13	1,00	Acceptep	4,13	1,00	Acceptep
21		Smuggling	4,40	1,00	Acceptep	4,40	1,00	Acceptep	4,40	1,00	Acceptep
22		Geopolitical dynamics	4,20	0,80	Acceptep	4,00	0,67	Rejected			
23		Cybersecurity Risks	3,80	0,73	Rejected						
24		Competition for maritime resources	4,07	0,80	Acceptep	4,07	0,80	Acceptep	4,33	0,93	Acceptep
25		Environmental Damage	3,53	0,60	Rejected						

3.2 Discussion

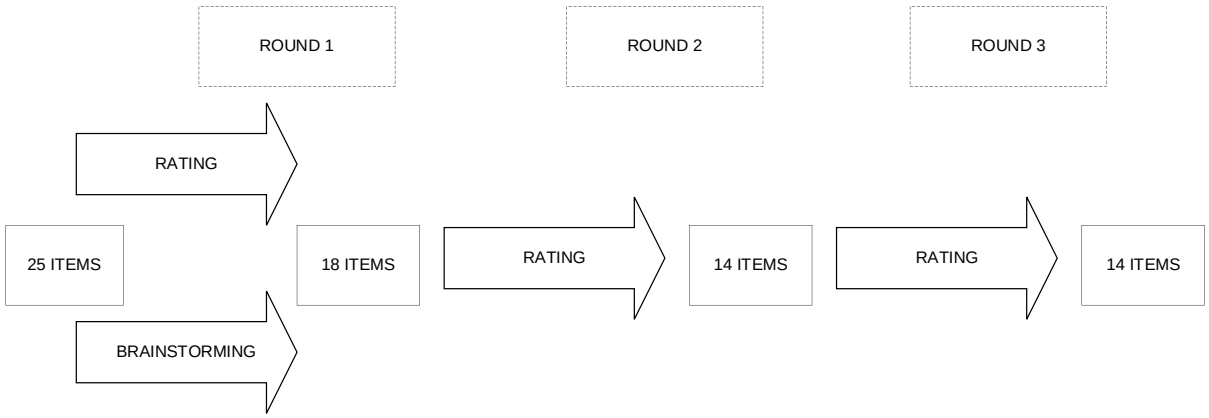

Fig 1. Overview of various rounds and number of indicators

The model for determining the impact factors on the achievement of MEF on the Strategic environment in the North Natuna Sea area is quite complex, because it has many characteristics in each aspect of the Deterrence Effect, Bargainning Power and Threat Maritime Security Criteria. The results of the 25 items of impact factors from 3 (three) main aspects in round 1 became 18 items where there were 7 factors released in the deterrence effect aspect, there were 3 factors: Effective Communication, Negotiation, Enemy Perceptions and Calculations, in the Bargainning power aspect there were 2 factors: International Laws and Norms and Geopolitical Significance, in the Threat Maritime Security aspect there are 2 factors: Cybersecurity Risks and Environmental Damage. Meanwhile, in the second round, 4 items were issued, namely: Economic power, Geopolitical Significance, Wealth Natural Resources and Geopolitical dynamics.

There are four sub-criteria in the deterrence effect aspect, four sub-criteria in the bargaining power criteria aspect and nine sub-criteria in the threat maritime security criteria aspect which were identified through a literature survey and consensus opinion of experts using the Delphi method, where 11 items were identified as not in

accordance with expert consensus, according to the experts, these 11 items are not in accordance with the research locus, geostrategic and geopolitical conditions that currently exist in the South China Sea region.

3.3 Implications.

Theoretical Implications: This research sheds light on the qualitative aspects of managing defense strategies within the maritime sphere of Indonesia, an area witnessing annual technological advancements and shifts in the stability of its strategic environment, alongside evolving threats to maritime security. It offers a foundational step for stakeholders aiming to evaluate and develop framework for impact MEF achievement. This tool is pivotal for policy strategy formulation, leveraging the solutions identified through this research. The proposed framework facilitates a self-assessment of capabilities by state actors, enabling them to benchmark against competitors and strategize for enhancing their regional defense competitiveness.

Practical and Managerial Contributions: This research stands to benefit practitioners and decision-makers by acquainting them with novel methodologies. It introduces a conceptual model for assessing the minimum base force, aimed at aiding policymakers in defense capability development. The anticipated outcome is to guide stakeholders in shaping future policies for Minimum Essential Force (MEF) enhancement. Furthermore, from a governmental standpoint, the proposed model is expected to play a significant role in managing territorial disputes, thus aiding in the preservation of national and regional stability. It positions itself as a strategic tool for negotiation, offering leverage in the context of the South China Sea disputes. Additionally, it encourages policymakers and academic institutions to explore non-military avenues for addressing security concerns through a systematic approach. Consequently, this research is poised to enrich the body of knowledge, particularly in the realm of Indonesian maritime strategy.

4. Conclusion

The Department of Education's method-based impact identification approach is a practical and efficient tool for identifying impact factors for achieving MEF. This framework makes it possible to balance and compare the impacts associated with maritime defense capability elements, as well as create a database, supplementing it with factual figures to arrive at several subfactors (14 subfactors in total). In this research there are study limitations that offer opportunities for future research. This research acknowledges several limitations that pave the way for future research avenues. Firstly, while the research successfully identifies key factors influencing maritime security threats, there is a pressing need to develop a comprehensive framework that encompasses both tangible and intangible threat factors.

BIBLIOGRAPHY

Ahmad, O. F., Mori, Y., Misawa, M., Kudo, S. E., Anderson, J. T., Bernal, J., Berzin, T. M., Bisschops, R., Byrne, M. F., Chen, P. J., East, J. E., Eelbode, T., Elson, D. S., Gurudu, S. R., Histace, A., Karnes, W. E., Repici, A., Singh, R., Valdastri, P., … Lovat, L. B. (2021). Establishing key research questions for the implementation of artificial intelligence in colonoscopy: A modified Delphi method. *Endoscopy*, *53*(9), 893–901. https://doi.org/10.1055/a-1306-7590

Almanasreh, E., Moles, R., & Chen, T. F. (2018). Research in Social and Administrative Pharmacy Evaluation of methods used for estimating content validity. *Research in Social and Administrative Pharmacy*, *xxxx*, 0–1. https://doi.org/10.1016/j.sapharm.2018.03.066

Andalus, M. K., & Djuyandi, Y. (2022). Analisis Implementasi Kebijakan Pengadaan Alutsista Ri Dalam Kerangka Kebijakan Minimum Essential Force (Mef) Pada Tahun 2020 …. *Aliansi: Jurnal Politik, Keamanan Dan …*, *1*(3), 175–188. https://doi.org/10.24198/aliansi.v1i3.44009

Chadhafi, M. I. (2021). *Peningkatan Kualitas Industri Pertahanan Strategis Guna Membangun Kekuatan Pertahanan Maritim dalam rangka Mewujudkan Visi Poros Maritim Dunia*.

Dugis, V. (2018). *Teori Hubungan Internasional ; Perspektif-Perspektif Klasik* (Nomor February).

Flostrand, A., Pitt, L., & Bridson, S. (2020). The Delphi technique in forecasting– A 42-year bibliographic analysis (1975–2017). *Technological Forecasting and Social Change*, *150*(January 2018), 119773. https://doi.org/10.1016/j.techfore.2019.119773

Harry, M., & Nugraha, R. (2017). *Muhammad Harry Riana Nugraha / Indonesian Future Strategic Defense Planning /207-220 Indonesian Future Strategic Defense Planning*.

Karakikes, I., & Nathanail, E. (2020). Using the delphi method to evaluate the appropriateness of urban freight transport solutions. *Smart Cities*, *3*(4), 1428–1447. https://doi.org/10.3390/smartcities3040068

Kaya, T., & Kahraman, C. (2011). An integrated fuzzy AHP-ELECTRE methodology for environmental impact assessment. *Expert Systems with Applications*, *38*(7), 8553–8562. https://doi.org/10.1016/j.eswa.2011.01.057

Lakmini, N., Reilly, G. O., Cameron, P., & Alwis, S. De. (2023). International Journal of Disaster Risk Reduction Developing a hospital disaster preparedness evaluation tool for Sri Lanka - A modified Delphi study. *International Journal of Disaster Risk Reduction*, *95*(July), 103866. https://doi.org/10.1016/j.ijdrr.2023.103866

Marisa, R. da silva; R. de C. (2021). Contributions of the Delphi technique to the validation of an occupational therapy assessment in the visual impairment field 1. *Brazillian Journal of Occupational Theraphy*, 1–15.

Marsetio. (2014). *Manajemen strategis negara maritim dalam perspektif ekonomi dan pertahanan*. *November*.

Nyström, A. G., & Kaartemo, V. (2022). Developing Delphi methodology for studying future market change. *Journal of Business and Industrial Marketing*, *37*(13), 124–141. https://doi.org/10.1108/JBIM-11-2021-0520

Ribeiro, A. S., deCastro, M., Costoya, X., Rusu, L., Dias, J. M., & Gomez-Gesteira, M. (2021). A Delphi method to classify wave energy resource for the 21st century: Application to the NW Iberian Peninsula. *Energy*, *235*, 121396. https://doi.org/10.1016/j.energy.2021.121396

Roya, F., & Behrooz, F. (2017). *Item Selection and Content Validity of the Risk Factors of Post-Intubation Tracheal Stenosis Observation Questionnaire for ICU-Admitted Patients Study design*. *16*(1), 22–33.

Santiko, U., & Agustien, M. D. (2022). Kerja Sama Industri Pertahanan Indonesia-Perancis Dalam Memenuhi Minimum Essential Force Tentara Nasional Indonesia Tahun 2015-2019. *Mjir) Moestopo Journal International Relations*, *2*(1), 77–90.

Schofield, C. (2016). *Untangling a Complex Web: Understanding Competing Maritime Claims in the South China Sea* (hal. 21–46). ISEAS–Yusof Ishak Institute. https://www.cambridge.org/core/product/5CAA47D4B7C8AA97FD35CF9B2D2E73AA

Stancine, K., Rocha, S., Silvestre, C. C., Maria, E., Jesus, S. De, Pereira, D., & Júnior, D. L. (2019). *Development and content validation of an instrument to support pharmaceutical counselling for dispensing of prescribed medicines*. *September 2018*, 1–8. https://doi.org/10.1111/jep.13102

Toppinen, A., Sauru, M., Pätäri, S., Lähtinen, K., & Tuppura, A. (2018). Internal and external factors of

competitiveness shaping the future of wooden multistory construction in Finland and Sweden. *Construction Management and Economics*, *0*(0), 1–16. https://doi.org/10.1080/01446193.2018.1513162

Utomo, H., Prihantoro, M., & Adriana, L. (2017). Peran Pemerintah Indonesia Dalam Mengelola Konflik Laut China Selatan. *Prodi Damai dan Resolusi Konflik*, *3 nomor 3*, 63–88.

Widiasih et al. (2015). *Prosiding Seminar Nasional Manajemen Teknologi XXIII Program Studi MMT- ITS, Surabaya 1 Agustus 2015 IDENTIFIKASI RISIKO PADA SAAT IMPLEMENTASI LEAN MANUFACTURING DENGAN METODE DELP... January 2016*.

Widiasih, W., Karningsih, P. D., & Ciptomulyono, U. (2015). Development of Integrated Model for Managing Risk in Lean Manufacturing Implementation: A Case Study in an Indonesian Manufacturing Company. *Procedia Manufacturing*, *4*(Lm), 282–290. https://doi.org/10.1016/j.promfg.2015.11.042

Yousuf, M. I. (2007). Using experts' opinions through Delphi technique. *Practical Assessment, Research and Evaluation*, *12*(4).

Zio, S. Di, & Maretti, M. (2015). *Acceptability of energy sources using an integration of the Delphi method and the analytic hierarchy process* (Nomor October 2013). https://doi.org/10.1007/s11135-013-9935-0

Ahmad, O. F., Mori, Y., Misawa, M., Kudo, S. E., Anderson, J. T., Bernal, J., Berzin, T. M., Bisschops, R., Byrne, M. F., Chen, P. J., East, J. E., Eelbode, T., Elson, D. S., Gurudu, S. R., Histace, A., Karnes, W. E., Repici, A., Singh, R., Valdastri, P., … Lovat, L. B. (2021). Establishing key research questions for the implementation of artificial intelligence in colonoscopy: A modified Delphi method. *Endoscopy*, *53*(9), 893–901. https://doi.org/10.1055/a-1306-7590

Almanasreh, E., Moles, R., & Chen, T. F. (2018). Research in Social and Administrative Pharmacy Evaluation of methods used for estimating content validity. *Research in Social and Administrative Pharmacy*, *xxxx*, 0–1. https://doi.org/10.1016/j.sapharm.2018.03.066

Andalus, M. K., & Djuyandi, Y. (2022). Analisis Implementasi Kebijakan Pengadaan Alutsista Ri Dalam Kerangka Kebijakan Minimum Essential Force (Mef) Pada Tahun 2020 …. *Aliansi: Jurnal Politik, Keamanan Dan …*, *1*(3), 175–188. https://doi.org/10.24198/aliansi.v1i3.44009

Chadhafi, M. I. (2021). *Peningkatan Kualitas Industri Pertahanan Strategis Guna Membangun Kekuatan Pertahanan Maritim dalam rangka Mewujudkan Visi Poros Maritim Dunia*.

Dugis, V. (2018). *Teori Hubungan Internasional ; Perspektif-Perspektif Klasik* (Nomor February).

Flostrand, A., Pitt, L., & Bridson, S. (2020). The Delphi technique in forecasting– A 42-year bibliographic analysis (1975–2017). *Technological Forecasting and Social Change*, *150*(January 2018), 119773. https://doi.org/10.1016/j.techfore.2019.119773

Harry, M., & Nugraha, R. (2017). *Muhammad Harry Riana Nugraha / Indonesian Future Strategic Defense Planning /207-220 Indonesian Future Strategic Defense Planning*.

Karakikes, I., & Nathanail, E. (2020). Using the delphi method to evaluate the appropriateness of urban freight transport solutions. *Smart Cities*, *3*(4), 1428–1447. https://doi.org/10.3390/smartcities3040068

Kaya, T., & Kahraman, C. (2011). An integrated fuzzy AHP-ELECTRE methodology for environmental impact assessment. *Expert Systems with Applications*, *38*(7), 8553–8562. https://doi.org/10.1016/j.eswa.2011.01.057

Lakmini, N., Reilly, G. O., Cameron, P., & Alwis, S. De. (2023). International Journal of Disaster Risk Reduction Developing a hospital disaster preparedness evaluation tool for Sri Lanka - A modified Delphi study. *International Journal of Disaster Risk Reduction*, *95*(July), 103866. https://doi.org/10.1016/j.ijdrr.2023.103866

Marisa, R. da silva; R. de C. (2021). Contributions of the Delphi technique to the validation of an occupational therapy assessment in the visual impairment field 1. *Brazillian Journal of Occupational Theraphy*, 1–15.

Marsetio. (2014). *Manajemen strategis negara maritim dalam perspektif ekonomi dan pertahanan*. *November*.

Nyström, A. G., & Kaartemo, V. (2022). Developing Delphi methodology for studying future market change. *Journal of Business and Industrial Marketing*, *37*(13), 124–141. https://doi.org/10.1108/JBIM-11-2021-0520

Ribeiro, A. S., deCastro, M., Costoya, X., Rusu, L., Dias, J. M., & Gomez-Gesteira, M. (2021). A Delphi method to classify wave energy resource for the 21st century: Application to the NW Iberian Peninsula. *Energy*, *235*, 121396. https://doi.org/10.1016/j.energy.2021.121396

Roya, F., & Behrooz, F. (2017). *Item Selection and Content Validity of the Risk Factors of Post-Intubation Tracheal Stenosis Observation Questionnaire for ICU-Admitted Patients Study design*. *16*(1), 22–33.

Santiko, U., & Agustien, M. D. (2022). Kerja Sama Industri Pertahanan Indonesia-Perancis Dalam Memenuhi Minimum Essential Force Tentara Nasional Indonesia Tahun 2015-2019. *Mjir) Moestopo Journal International Relations*, *2*(1), 77–90.

Schofield, C. (2016). *Untangling a Complex Web: Understanding Competing Maritime Claims in the South China Sea* (hal. 21–46). ISEAS–Yusof Ishak Institute. https://www.cambridge.org/core/product/5CAA47D4B7C8AA97FD35CF9B2D2E73AA

Stancine, K., Rocha, S., Silvestre, C. C., Maria, E., Jesus, S. De, Pereira, D., & Júnior, D. L. (2019). *Development and content validation of an instrument to support pharmaceutical counselling for dispensing of prescribed medicines*. *September 2018*, 1–8. https://doi.org/10.1111/jep.13102

Toppinen, A., Sauru, M., Pätäri, S., Lähtinen, K., & Tuppura, A. (2018). Internal and external factors of competitiveness shaping the future of wooden multistory construction in Finland and Sweden. *Construction Management and Economics*, *0*(0), 1–16. https://doi.org/10.1080/01446193.2018.1513162

Utomo, H., Prihantoro, M., & Adriana, L. (2017). Peran Pemerintah Indonesia Dalam Mengelola Konflik Laut China Selatan. *Prodi Damai dan Resolusi Konflik*, *3 nomor 3*, 63–88.

Widiasih et al. (2015). *Prosiding Seminar Nasional Manajemen Teknologi XXIII Program Studi MMT- ITS, Surabaya 1 Agustus 2015 IDENTIFIKASI RISIKO PADA SAAT IMPLEMENTASI LEAN MANUFACTURING DENGAN METODE DELP... January 2016*.

Widiasih, W., Karningsih, P. D., & Ciptomulyono, U. (2015). Development of Integrated Model for Managing Risk in Lean Manufacturing Implementation: A Case Study in an Indonesian Manufacturing Company. *Procedia Manufacturing*, *4*(Lm), 282–290. https://doi.org/10.1016/j.promfg.2015.11.042

Yousuf, M. I. (2007). Using experts' opinions through Delphi technique. *Practical Assessment, Research and Evaluation*, *12*(4).

Zio, S. Di, & Maretti, M. (2015). *Acceptability of energy sources using an integration of the Delphi method and the analytic hierarchy process* (Nomor October 2013). https://doi.org/10.1007/s11135-013-9935-0

Ahmad, O. F., Mori, Y., Misawa, M., Kudo, S. E., Anderson, J. T., Bernal, J., Berzin, T. M., Bisschops, R., Byrne, M. F., Chen, P. J., East, J. E., Eelbode, T., Elson, D. S., Gurudu, S. R., Histace, A., Karnes, W. E., Repici, A., Singh, R., Valdastri, P., … Lovat, L. B. (2021). Establishing key research questions for the implementation of artificial intelligence in colonoscopy: A modified Delphi method. *Endoscopy*, *53*(9), 893–901. https://doi.org/10.1055/a-1306-7590

Almanasreh, E., Moles, R., & Chen, T. F. (2018). Research in Social and Administrative Pharmacy Evaluation of methods used for estimating content validity. *Research in Social and Administrative Pharmacy*, *xxxx*, 0–1. https://doi.org/10.1016/j.sapharm.2018.03.066

Andalus, M. K., & Djuyandi, Y. (2022). Analisis Implementasi Kebijakan Pengadaan Alutsista Ri Dalam Kerangka Kebijakan Minimum Essential Force (Mef) Pada Tahun 2020 …. *Aliansi: Jurnal Politik, Keamanan Dan …*, *1*(3), 175–188. https://doi.org/10.24198/aliansi.v1i3.44009

Chadhafi, M. I. (2021). *Peningkatan Kualitas Industri Pertahanan Strategis Guna Membangun Kekuatan Pertahanan Maritim dalam rangka Mewujudkan Visi Poros Maritim Dunia*.

Dugis, V. (2018). *Teori Hubungan Internasional ; Perspektif-Perspektif Klasik* (Nomor February).

Flostrand, A., Pitt, L., & Bridson, S. (2020). The Delphi technique in forecasting– A 42-year bibliographic analysis (1975–2017). *Technological Forecasting and Social Change*, *150*(January 2018), 119773. https://doi.org/10.1016/j.techfore.2019.119773

Harry, M., & Nugraha, R. (2017). *Muhammad Harry Riana Nugraha / Indonesian Future Strategic Defense Planning /207-220 Indonesian Future Strategic Defense Planning*.

Karakikes, I., & Nathanail, E. (2020). Using the delphi method to evaluate the appropriateness of urban freight transport solutions. *Smart Cities*, *3*(4), 1428–1447. https://doi.org/10.3390/smartcities3040068

Kaya, T., & Kahraman, C. (2011). An integrated fuzzy AHP-ELECTRE methodology for environmental impact assessment. *Expert Systems with Applications*, *38*(7), 8553–8562. https://doi.org/10.1016/j.eswa.2011.01.057

Lakmini, N., Reilly, G. O., Cameron, P., & Alwis, S. De. (2023). International Journal of Disaster Risk Reduction Developing a hospital disaster preparedness evaluation tool for Sri Lanka - A modified Delphi study. *International Journal of Disaster Risk Reduction*, *95*(July), 103866. https://doi.org/10.1016/j.ijdrr.2023.103866

Marisa, R. da silva; R. de C. (2021). Contributions of the Delphi technique to the validation of an occupational therapy assessment in the visual impairment field 1. *Brazillian Journal of Occupational Theraphy*, 1–15.

Marsetio. (2014). *Manajemen strategis negara maritim dalam perspektif ekonomi dan pertahanan*. *November*.

Nyström, A. G., & Kaartemo, V. (2022). Developing Delphi methodology for studying future market change. *Journal of Business and Industrial Marketing*, *37*(13), 124–141. https://doi.org/10.1108/JBIM-11-2021-0520

Ribeiro, A. S., deCastro, M., Costoya, X., Rusu, L., Dias, J. M., & Gomez-Gesteira, M. (2021). A Delphi method to classify wave energy resource for the 21st century: Application to the NW Iberian Peninsula. *Energy*, *235*, 121396. https://doi.org/10.1016/j.energy.2021.121396

Roya, F., & Behrooz, F. (2017). *Item Selection and Content Validity of the Risk Factors of Post-Intubation Tracheal Stenosis Observation Questionnaire for ICU-Admitted Patients Study design*. *16*(1), 22–33.

Santiko, U., & Agustien, M. D. (2022). Kerja Sama Industri Pertahanan Indonesia-Perancis Dalam Memenuhi Minimum Essential Force Tentara Nasional Indonesia Tahun 2015-2019. *Mjir) Moestopo Journal International Relations*, *2*(1), 77–90.

Schofield, C. (2016). *Untangling a Complex Web: Understanding Competing Maritime Claims in the South China Sea* (hal. 21–46). ISEAS–Yusof Ishak Institute. https://www.cambridge.org/core/product/5CAA47D4B7C8AA97FD35CF9B2D2E73AA

Stancine, K., Rocha, S., Silvestre, C. C., Maria, E., Jesus, S. De, Pereira, D., & Júnior, D. L. (2019). *Development and content validation of an instrument to support pharmaceutical counselling for dispensing of prescribed medicines*. *September 2018*, 1–8. https://doi.org/10.1111/jep.13102

Toppinen, A., Sauru, M., Pätäri, S., Lähtinen, K., & Tuppura, A. (2018). Internal and external factors of competitiveness shaping the future of wooden multistory construction in Finland and Sweden. *Construction Management and Economics*, *0*(0), 1–16. https://doi.org/10.1080/01446193.2018.1513162

Utomo, H., Prihantoro, M., & Adriana, L. (2017). Peran Pemerintah Indonesia Dalam Mengelola Konflik Laut China Selatan. *Prodi Damai dan Resolusi Konflik*, *3 nomor 3*, 63–88.

Widiasih et al. (2015). *Prosiding Seminar Nasional Manajemen Teknologi XXIII Program Studi MMT- ITS, Surabaya 1 Agustus 2015 IDENTIFIKASI RISIKO PADA SAAT IMPLEMENTASI LEAN MANUFACTURING DENGAN METODE DELP... January 2016*.

Widiasih, W., Karningsih, P. D., & Ciptomulyono, U. (2015). Development of Integrated Model for Managing Risk in Lean Manufacturing Implementation: A Case Study in an Indonesian Manufacturing Company. *Procedia Manufacturing*, *4*(Lm), 282–290. https://doi.org/10.1016/j.promfg.2015.11.042

Yousuf, M. I. (2007). Using experts' opinions through Delphi technique. *Practical Assessment, Research and Evaluation*, *12*(4).

Zio, S. Di, & Maretti, M. (2015). *Acceptability of energy sources using an integration of the Delphi method and the analytic hierarchy process* (Nomor October 2013). https://doi.org/10.1007/s11135-013-9935-0