



Conceptual Model Measurement of Total People's Defense and Security System Readiness Based on Land Defense

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Article Info

Article history:

Received: March 17, 2023

Revised: July 16, 2023

Accepted: August 26, 2023

Keywords:

Defense

Index

Model

PLS-SEM

Sishankamrata

DOI:

<http://dx.doi.org/10.33172/jp.v9i2.8712>

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Abstract

The Total People's Defense and Security System (*Sishankamrata*) is a critical component of Indonesia's national defense strategy. This study proposes a conceptual model of the Basic Military Capacity Index (BMCI) as a reliable and valid tool for measuring instruments to ensure the readiness of its civilian population in facing protracted warfare. It is used tree criterion model as Multi-Criteria decision-making (MCDM) to determine the variable as the qualitative model and the Partial Least Squares-Structural Equation Modelling (PLS-SEM) method to test the relationships between selected variables, validate constructs, and measure the reliability of each variable in developing the BMCI. If this model is developed and applied on a national scale, it enables the government to determine a more effective strategy, ensuring that the civilian population is adequately prepared to defend the sovereignty, territorial integrity, and national safety of the country better based on real measurement results. This study makes a significant contribution as the first step for that bigger plan on measuring total people's defense and security system readiness by proposing a conceptual model index as the basis of assessing *Sishankamrata* in an exact testing sample population.

INTRODUCTION

Nowadays, the occurrence of war is becoming increasingly unpredictable. A clear example of this is the conflict between Russia and Ukraine. It started when Ukraine decided to register as a member of the North Atlantic Treaty Organization (NATO), which made Russia feel that its defense was being threatened (Syuryansyah & Berthanila, 2022). As a reaction, Russia began its aggression, which led to a war between the two countries (Syuryansyah & Berthanila, 2022). Due to the unpredictable nature of wars, technological advancements in weapons and war infrastructure make wars have a great potential to become protracted (Metz, 2000). When wars become protracted, by

the Indonesian defense doctrine, the entire Indonesian nation both military and non-military is obligated to defend the Unitary State of the Republic of Indonesia (Ministry of Defense of the Republic of Indonesia, 2015) with awareness of their rights and obligations. The problem is that, because it is only based on awareness of the rights and obligations to defend the Unitary State of the Republic of Indonesia, there is no guarantee or control over the will and readiness of the Indonesian people if they later have to face such a situation (Roringkon, Sarjito, & Saragih, 2022).

As an example, in the Russia-Ukraine war, several Ukrainian citizens left their country instead of joining in defending their country (Eisele, 2023). This is not desired to happen in Indonesia. The hope is that all Indonesian citizens by the adopted doctrine Total People's Defense and Security System (*Sistem Pertahanan Dan Keamanan Rakyat Semesta*, hereinafter called *Sishankamrata*) can participate in the struggle and fight for the Indonesian nation. Therefore, to measure the readiness of the aforementioned *Sishankamrata* doctrine, it is needed to create a measuring tool in the form of an index to serve as a reference for the government to assess the readiness of the civilian population in the face of a protracted war. In this study, a comprehensive measurement tool to assess the readiness of the civilian population throughout Indonesia in the face of a protracted war was not formulated due to research limitations. However, the conceptual model of this measurement tool will be developed, and testing of the model will be conducted on a small sample scope as an initial step. In this context, the term "measuring tool" refers to an index similar to the Pancasila ideology resilience index and the food resilience index previously formulated by Maharani, Surono, Sutarmanto, & Zubaidi (2019) and Zamrodah (2020). However, with a novel approach, a Multi-Criteria Decision Making (MCDM) method is employed to create the conceptual model. Once the model is formulated, it will be tested using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach to ensure how the model functions on a small scale initially.

To create this index, a literature study was conducted, particularly about the total people's defense system (*Sishankamrata*). The total people's defense and security system (*Sishankamrata*) is essentially a concept of the national defense system that is deeply rooted in Indonesia (Dharmawan, 2019). As the base defense system of Indonesia of course it will be connected strongly with protracted war as a base consideration to choose variables that will be used in the conceptual model. Considering that the current strategic environment is increasingly dynamic and brings about changes in a complex spectrum of threats, threats are the most important factor forming the basis for planning current and potential national defense strategies (Indrawan, 2015).

The potential threat of conventional war from other countries' military aggression is anticipated through the implementation of a multi-layered defense strategy involving layers of deterrence, military defense, and prolonged warfare (Hutri, Sitorus, & Santosa, 2020). Preparation for longer war shifts in peacetime is carried out by structuring the land defense area, especially the dynamic aspects that are integrated with the spatial planning of the government's territory. The essence of national defense and security is the resistance of the universal people in facing every form of threat to the safety of the nation and state (Indrawan, 2015). Its implementation is built on the defense and security system of the entire nation, based on the rights and obligations of citizens, as well as a belief in one's strength, belief in victory, and rejection of surrender or relinquishing of territory.

The resistance of the universal people refers to the awareness, determination, attitudes, and opinions of all Indonesian people to prevent, thwart, and destroy any

threat that endangers the safety of the Indonesian nation and state. The ultimate form of this resistance is the total people's war, which involves the overall total resistance of all Indonesian people against opponents who seek to seize the independence and sovereignty of the Indonesian nation and state by mobilizing all potential and national strength (Tanjung, Midhio, & Syarifuddin, 2021). The national defense strategy is implemented by preparing for universal defense, active defensive defense, layered defense, strengthening regional security, enhancing international cooperation, developing the defense industry, and improving the awareness and ability of the state to defend itself (Indrawan, 2015). The layered defense strategy is implemented through a synergy between military and non-defense defenses, including layers of deterrence, military defense, and non-military defense (Tanjung et al., 2021).

The significant role of *Sishankamrata* in Indonesia's defense, both in the present and in the event of a protracted war in the future is crucial. It is considered crucial because, in the event of a protracted war, civilian human resources who are capable and willing to defend the country are also needed. Although there have been similar studies aimed at measuring Indonesia's defense readiness, particularly Indonesia's *Sishankamrata*, none of them specifically measure the military capacities of civilians like BMCI.

Table 1. Related Journals (Jasi, Bura, & Jupriyanto, 2021; Darmawan, Poniman, & Gultom, 2021; Mazda, Apriyanto, & R., 2020; Sebastian, 2015; Simanjuntak, 2011; Taufik, 2005)

No.	Researcher	Year	Title	Method	Result
1.	Dorothea Sthallhani Jasi, Romie Oktovianus Bura, Jupriyanto	2021	Conceptual Model of Technology Audit for the Main Weapon System (Case Study of C-705 Missile)	Main Weapon System Readiness Level (MWSRL) with additional assessment components such as Request, HAKI, IDKLO, Standards, Budget, Business Prospects, and MRO as assessment indicators	The conceptualization of the Defense Equipment Technology Audit Model is outlined in the development of instruments for measuring and assessing the readiness of the Defense Weapons System designed as the Main Weapon System Readiness Level (MWSRL) and stated as the Conceptual Model of Defense Equipment Technology Audit.
2.	Nyoman Darmawan, Aris Poniman, Rudy A.G Gultom	2022	Concept of Developing Cyber Security Defense Technology Based on a Ware Framework at the Headquarters of the Indonesian Navy in Palu	Six Ware Cyber Security Framework (SWCSF)	Overall it was concluded that from the measurement of cyber security readiness at Lanal Palu, Lanal Palu already has the technology, but does not yet have the plan to develop its cyber security defense technology.

3	Chadziqatun Najilatil Mazda, I Nengah Putra A., Deni Dadang A. R.	2020	Development Strategy of PT. Inka Industry Towards Regional Logistics Distribution Readiness in Supporting the National Defense System	Mix Method, TRL dan MRL.	From the readiness analysis of the development of PT INKA's Industrial Logistics Distribution, PT INKA's ability to provide transportation facilities to support the national development program is a good skill. Through the development of multipurpose transportation facilities, it is known that the level of technology readiness or Technology Readiness Level (TRL) is at level 7 along with the level of manufacturing readiness. Readiness Level (MRL) at level 9
4	Elly Sebastian	2018	Enhancing the Role of National Defense Human Resources in Facing Fourth Generation Warfare	Qualitative Study	Facing the Generation 4 form of war, the defense force can no longer only rely on military force, but also the involvement of civilian elements in maintaining defense. This civil involvement is a form of counter to the 4th GW model of war involving non-state actors. The involvement of civilians in defense HR must emphasize professionalism, in the form of expertise, social responsibility, and a binding defense organization (corporates).
5	Sabar Simanjuntak, Prof. Drs. Kasto, MA	2011	Optimization of Preparing Resistance Base Area in Realizing Regional Defense System (Case Study of 0618/BS Military District Command-Bandung City)	This research is a type of qualitative research, using deductive and inductive reasoning methods and interpretations.	Increasing national defense can be done through efforts to increase the defense of regions in Indonesia, one of which is optimizing the bases of resistance. The base area of resistance is a certain part of a defense area/area that has been selected and prepared as a center of activity or

				control center for resistance against enemies and opponents, especially in the context of carrying out a protracted war.
6	Tatang A. Taufik	2005	Concept and Methods of Measuring Technology Readiness Level (TRL)	TRL meter (Technology Readiness Level) from NASA Technology maturity/readiness determines the success of technology utilization programs in product development. The more mature/ready a technology is at the start of the program, the greater the chances of the program's success in achieving its objectives

Based on the several journals mentioned in Table 1, it can be concluded that the concept of measuring readiness can be approached in various ways. However, in the context of measuring the basic military capacities of civilians, this study has used the Partial Least Squares-Structural Equation Modeling (PLS-SEM) statistical method based on an index that has been formulated as the Basic Military Capacity Index. Therefore, this research will develop an assessing tool to evaluate the readiness of Indonesia's *Sishankamrata* from the perspective of its human resources specifically. This study proposes a conceptual model of the Basic Military Capacity Index (BMCI) as a reliable and valid tool for measuring instruments to ensure the readiness of its civilian population in facing protracted warfare

METHODS

As previously mentioned, the main objective to be achieved in this paper is to conceptually formulate the Basic Military Capacity Index. For this reason, it will be carried out first by making a tree of criteria from a literature review which will be discussed as part of the MCDM (multi-criteria decision-making). MCDM is an analytical approach that considers many criteria or factors to select the best option or alternative from some possible solutions as a qualitative model (Dwitama, 2019). In this case, the criteria compiled are the variables to be determined and the alternative is the value of civilian capability class categorized as very low, low, fairly good, good, and very good. The criteria will be arranged such that affect the Basic Military Capacity Index significantly and then from the results of the criteria tree, will be used is a statistical method with PLS-SEM inferential analysis which has previously been used in research on state resilience index specifically on public health development index by the ministry of health (Sholiha & Salamah, 2015) for testing the index in the real sample case and then assigning weights to the criteria tree that has been created.

Structural Equation Modeling (SEM) is a multivariate analysis method used to describe the simultaneous linear relationship between measured variables (indicators) and immeasurable variables (latent variables) (Juliandi, 2018). Latent variables are variables that can only be observed using the indicators themselves. Meanwhile, Partial Least Square (PLS) is a statistical analysis method that is a development of regression but with the development of the concept of structural models and measurement models

(Hair et al., 2021). In this case, the structural model is a model of the relationship between latent variables while the measurement model is a model of the relationship between latent variables and their indicators (Zuhdi, Suharjo, & Sumarno, 2016). In this case, with simplification, mathematically the structural model can be described as follows:

$$\boldsymbol{\eta} = \mathbf{B}\boldsymbol{\eta} + \boldsymbol{\Gamma}\boldsymbol{\xi} + \boldsymbol{\zeta} \quad (1)$$

$\boldsymbol{\eta}$: Random vector endogenous latent variable size (m x 1)

\mathbf{B} : Coefficient matrix of endogenous latent variables with size (m x m)

$\boldsymbol{\Gamma}$: Coefficient matrix of exogenous latent variables, showing the relationship of $\boldsymbol{\xi}$ to $\boldsymbol{\eta}$ of size (m x n)

$\boldsymbol{\xi}$: Vector latent exogenous random variable with size (n x 1)

$\boldsymbol{\zeta}$: vector random error size (m x 1)

In addition, the measurement model can be described as follows:

$$\mathbf{y} = (\boldsymbol{\Lambda}_y)\boldsymbol{\eta} + \boldsymbol{\varepsilon} \quad (2)$$

$$\mathbf{x} = (\boldsymbol{\Lambda}_x)\boldsymbol{\xi} + \boldsymbol{\delta} \quad (3)$$

\mathbf{y} : An indicator vector y

\mathbf{x} : An indicator vector x

$\boldsymbol{\Lambda}_y$: The loading matrix between the variable y and its indicators.

$\boldsymbol{\Lambda}_x$: The loading matrix between the x variable and its indicators.

$\boldsymbol{\varepsilon}$: Error measurement vector of the variable y indicator.

$\boldsymbol{\delta}$: Error measurement vector of the indicator variable x.

In short, by first compiling a tree of criteria that contains the factors of the people's military capacities as a qualitative model, it will identify the appropriate instruments to represent these factors in the form of a Google form which will eventually be distributed to a sample of the predetermined population. After the data is obtained from the sample, the data is processed using the SmartPLS 4 application so that later it will be obtained the mathematical formula as conceptual model testing of the literature review.

Survey

The survey The study was conducted in the village of Tangkil during January and February 2023. The population under investigation comprises residents living in the Tangkil village, district Citeureup, Bogor Regency, West Java. In this survey, various types of data scales including interval, ratio, and qualitative data can be utilized. For this particular conceptual model, qualitative data would need to be numerically coded for data processing with the help of Google Forms and Microsoft Excel. Once the qualitative data is transformed into numerical format (ordinal data), This data will be bootstrapped which involves resampling, carried out multiple times to enhance the consistency and reliability of the PLS model. The sample size required in this survey is 43 respondents. Generally, it is suggested to be around ten times the number of indicators used to measure a latent variable or the maximum number of structural paths directed towards a specific latent variable in the structural model. Some opinions suggest even 20 observations be sufficient for analysis (Hair et al., 2021).

The PLS (Partial Least Squares) model survey assumptions include not requiring adherence to normality assumptions for data. It allows for small sample sizes and doesn't necessitate random sampling. It permits the use of formative indicators to measure latent variables, alongside reflective indicators. Dichotomous latent variables

are allowed. Measurement scales other than interval can be used. Residual distribution in PLS-SEM is not obligatory, unlike covariance-based SEM, where it should be minimized like in linear regression. PLS-SEM serves both to confirm existing scientific theories or hypotheses and to design new models. It does not accommodate non-recursive relationships between variables. PLS-SEM enables complex models with numerous latent variables and indicators (Hair et al., 2021).

RESULT AND DISCUSSION

Literature Review and Model Limitations

Total People's Defense and Security (Sishankamrata)

According to the Republic of Indonesia National Defense Institute (2021), *Sishankamrata* originated during Indonesia's early struggles as a nation, when it can be said that the nation was armed. It also stated that the defense and security movement began with the People's Security Agency before Indonesia became a country, and after its formation, there was a regular separation between defense and security (Novariyanto, 2010). During Indonesia's state formation, its power capital was its people, and the focus was on them. Therefore, it was named because the total people's defense and security system capital was the people. However, according to the Republic of Indonesia National Defense Institute (2021), Indonesia has now progressed and has more capital than just its people. The country has gained national strength through development, and universality is no longer limited to the power of the people. The presence of these elements of national strength means that in the event of a threat to the nation's survival, resistance efforts can mobilize all available resources and assets to support defense efforts (Rusfiana, 2021).

Departing from the brief history of *Sishankamrata* above, the terminology of the total people's defense and security system has currently developed into a state defense and security effort carried out by the Indonesian National Armed Forces and the Indonesian National Police as the main force, with the people as a supporting force (Rusfiana, 2021). The Indonesian National Armed Forces (TNI) consists of the Army, Navy, and Air Force, and serves as a means of defense for the country, tasked with defending, protecting, and maintaining the integrity and sovereignty of the state. The National Police of the Republic of Indonesia, as a state tool that maintains security and public order, has to protect, serve, and enforce the law in the community.

Furthermore, from the history and terminology of *Sishankamrata*, *Sishankamrata* is characterized by Democracy, Universality, and Territory. Democracy means the orientation of defense and security for the benefit of all the people. Universality means all types of national resources used in national defense. Territory means the title of strength in the field of defense which is carried out comprehensively throughout the territory of the Republic of Indonesia and adapted to the geography of Indonesia (Novariyanto, 2010). Hence, the total people's defense and security system (*Sishankamrata*) is a strategy to address both military and non-military threats, aimed at enhancing Indonesia's national security through independence, dynamism, unity, and authority. This system is implemented by the main components, reserves, and supporters while maintaining the aforementioned features (Setiyawan, Mantri, & Junaidi, 2020).

Ground Defense Base

In this case, the capability measured is based on land defense so the assumptions used are the readiness of the people to fight on land. What is meant by land warfare is

that war involves military operations on the mainland of a country to defeat the enemy to achieve political, economic, and social goals (Sulistyo, Toruan, & Waluyo, 2020).

Military capacity

Military capacities have different definitions depending on the context of the defending subject and defended object. Referring to the book "Determinants of Military Capability Effectiveness" by Setiawan, Madhakomala, & Cahyana (2022) it is known that military capability consists of Academic Aspects, which implies that military capacity must be built starting from proficient academic aspects. Then, Availability Aspect pertains to diverse factors associated with the existence or attainability. These factors can span physical presence, temporal availability, resource accessibility, and the aptitude to approach or employ said entities. Lastly, the Personality Aspect alludes to distinct attributes or qualities that cumulatively shape an individual's demeanor and conduct. These attributes encompass assorted virtues, behaviors, and characteristics that contribute to a person's distinct identity and interactions with the surrounding world.

This definition of military capacity differs slightly from that of the Australian Defense Agency. Military capacity is defined as the ability to achieve a desired effect in a particular operational environment. It is determined by three interdependent factors which are combat readiness, endurance capability, and force structure. Military assets refer to existing assets that can be used to carry out certain functions related to current or future military operations as a result of strategic national defense policies. National capacity development plans aim to provide a global understanding of capacity needs, trends, and potential gaps. Military capability is often classified as low, medium, or high, depending on the type, number, and sophistication of the technology used in combat missions and the severity of threats to national security (Hinge, 2000).

In addition, the Ministry of Defense of the Republic of Indonesia (2015) does not directly discuss military capability. However, it does discuss the development of the military defense component, which is the basis for military capability, as follows:

1. Able to deal with various threats
2. Ready, synergistic, and professional.
3. Ready to become state intelligence, and fully support defense both physically and diplomatically.

Basic Military

Basic military refers to the fundamental knowledge, skills, and training required by military personnel, especially those who have recently joined the military service. It encompasses basic lessons on tactics, techniques, communication, equipment maintenance, military ethics, and the skills necessary to survive and operate in a military environment. This basic training forms the foundation for military personnel before they proceed to more specialized training according to their respective roles and responsibilities (Drain et al., 2015).

Urban Warfare

Today, urban warfare has become an important concept that has emerged in many cities around the world. Building national defense includes building war capacities, and one of them is city warfare capacities. Urban wars can be interpreted as wars that occur in cities or urban areas. Cities or urban areas are very important areas or regions that always position themselves as the center of government and power as well as other

critical (important) issues (Putri, 2022). Therefore, the conquest (conquest) and defense (protection) of cities and urban areas became very strategic and important. Urban Origins argues that the birth of a city is the result of the development of a region or region where the center of government and power as well as other important (important) things were originally limited and protected by the construction of large walls, then formed assumptions about fortresses (fortresses). Where the centers of government and power as well as other important (important) things are scattered and are no longer limited and protected by fortress walls (Indrawan, 2015). In the development of world history, fortress wars became the beginning of urban wars because, as already explained, fortresses became the center of human activity, The purpose of its development was no longer a symbol of defense, but also the center of human activity and social interaction.

BMCi Criteria Tree as Literature Review Result

As previously discussed, as in the case of *Sishankamrata*, in this context, a criteria tree is established, beginning by considering people's readiness. This is chosen because, considering the history of the creation of *Sishankamrata* and foreseeing the potential for prolonged conflicts in the future, people's readiness significantly influences the successful implementation of *Sishankamrata*. Furthermore, people's readiness is influenced by two aspects: willingness and capability (Ministry of Defense of the Republic of Indonesia, 2015). Regarding willingness, from the literature review of the aforementioned sources, it is found that the dominant factors influencing willingness to be concerned, sacrifice, and serve militarily (Drain et al., 2015). Moving forward, for capability, as discussed earlier about the definitions of basic military capability and military capacity, capabilities are divided into personality, knowledge, and fitness. Within personality, factors like Professional attitude, synergy, and intelligence have a significant impact (Ministry of Defense of the Republic of Indonesia, 2015). Whereas, in terms of knowledge, considering the basis used within the limitations of this research being urban warfare and ground defense, the necessary knowledge includes Basic Military Knowledge and Urban Warfare Knowledge (Putri, 2022). Lastly, the fitness factor comes into play. This factor is generally influenced directly by the ability to defend oneself and personal health (Drain et al., 2015).

The Literature Review has produced a BMCi Criteria Tree and variable tables as its outcomes. The BMCi Criteria Tree provides a visual representation of the review's findings, allowing for easy interpretation of the results. The variable tables, on the other hand, present the data in a more structured and organized manner, making it easier for readers to extract relevant information (Syaripul & Bachtiar, 2016). These outcomes serve as the foundation for further research and analysis in the field, providing a comprehensive understanding of the topic at hand. In this way, the Literature Review's outcomes serve as a valuable resource for readers and scholars alike.

The relationship between the professional variable and basic military skills can have a positive correlation. Professional skills such as discipline, perseverance, teamwork, responsibility, and the ability to make sound decisions can help military personnel carry out their basic tasks effectively (Setiawan et al., 2022b). The relationship between the synergy variable and basic military skills is very important for national security. This is because effective cooperation and integration of resources and manpower can help increase the efficiency and effectiveness of basic military skills in carrying out their tasks. The relationship between the intelligence variable and basic military skills is crucial for carrying out their tasks. Intelligence refers to I nformation obtained from

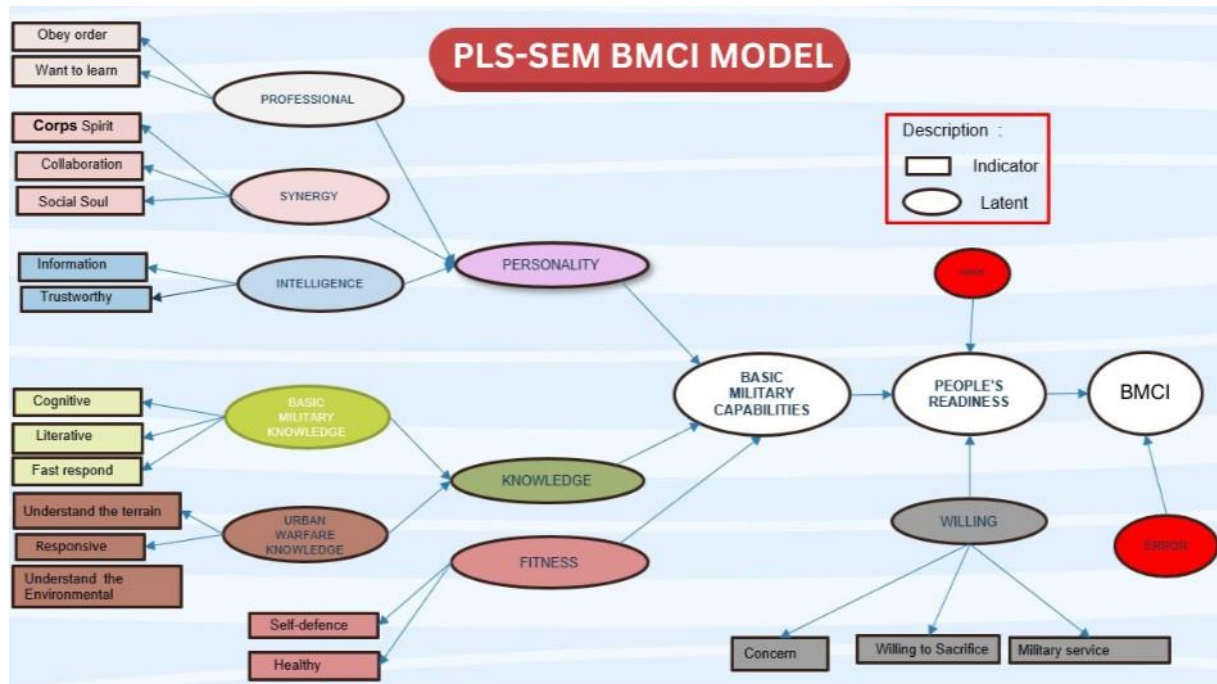


Figure 1. The Tree Criteria Model based on Literature Review (Hinge, 2000; Ministry of Defense of the Republic of Indonesia, 2015; Setiawan, Madhakomala, & Cahyana, 2022b; Republic of Indonesia National Defense Institute, 2015)

various sources to assist in decision-making and strategic planning (Setiawan et al., 2022b). This includes information about potential enemy activities, national security threats, and information about the military's operational environment.

In a military context, intelligence can help basic military skills make strategic decisions, such as operational planning, resource allocation, and evaluating enemy capacities (Drain et al., 2015). With accurate and complete intelligence information, basic military skills can enhance their ability to protect national security. The relationship between the basic military knowledge variable and basic military skills is crucial in improving the basic military skills' ability to carry out their tasks effectively and efficiently. Basic military knowledge includes an understanding of basic military principles, strategies, and tactics, military equipment and technology, as well as the skills and expertise required to carry out military tasks.

With adequate basic military knowledge, basic military personnel can perform their tasks better, enhance their ability in various situations, and adapt to new developments in military technology and battle strategy. Additionally, basic military knowledge can also help basic military personnel understand the risks and threats that may be encountered during military operations, as well as provide them with the knowledge and skills needed to manage emergencies or crises. The relationship between urban warfare knowledge and basic military skills can have a significant correlation, especially in terms of preparing and carrying out military tasks. For example, knowledge of military strategy and tactics can help military personnel make sound decisions when in the field. Knowledge of weapons, equipment, and defense tactics can help military personnel prepare themselves well before their duties.

The relationship between the fitness variable and basic military skills can have a strong correlation with basic military skills. As military personnel, good physical health is very important because military duties can require high physical abilities. Therefore, good fitness can help military personnel complete their duties more effectively and

efficiently. The relationship between the willingness variable and basic military skills can have a strong correlation with basic military skills. Military personnel who are willing to join usually have strong motivation and determination to serve the country and carry out their duties well.

Next, the creation of relationships between variables and indicators in the form of tables is conducted. The purpose is to further display the inner and outer models, which are requirements for the PLS-SEM model. In addition, this is also to enable readers to understand the relationships between variables one by one.

Table 2. Inner Model Table (Hinge, 2000; Ministry of Defense of the Republic of Indonesia, 2015; Setiawan et al., 2022b)

Latent Variable (Level 1)	Latent Variable (Level 2)	Latent Variable (Level 3)
Basic Military Capacities (A1)	Personality (B)	Professional (B1) Synergy (B2) Intelligence (B3)
	Knowledge (C)	Basic Military Knowledge (C1) Urban Warfare Knowledge (C2)
	Fitness (D)	Self-Defense (D1) Healthy (D2)
People's Readiness (A2)	Willing (E)	

Table 3. Outer Model Table (Hinge, 2000; Ministry of Defense of the Republic of Indonesia, 2015; Setiawan et al., 2022b)

Latent Variable (Levels 2 And 3)	Indicator	Question Directions	Code
Professional	Obeying Orders	Positive (+)	(B11)
	Willing To Learn	Positive (+)	(B12)
Synergy	Korps Spirit	Positive (+)	(B21)
	Collaboration	Positive (+)	(B22)
	Social Soul	Positive (+)	(B23)
Intelligence	Information	Positive (+)	(B31)
	Trustworthy	Positive (+)	(B32)
Basic Military Knowledge	Cognitive	Positive (+)	(C11)
	Literacy	Positive (+)	(C12)
	Fast Respond	Positive (+)	(C13)
Urban Warfare Knowledge	Understand The Terrain	Positive (+)	(C21)
	Responsive	Positive (+)	(C22)
	Understand The Environment	Positive (+)	(C23)
Fitness	Self Defense	Positive (+)	(D1)
	Healthy	Positive (+)	(D2)
Willing	Concern	Positive (+)	(E1)
	Willing To Sacrifice	Positive (+)	(E2)
	Military Service	Positive (+)	(E3)

After the model has been arranged into Table 2 and Table 3, the next step is to input the model into the SmartPLS 4 application, and the previously collected data from Google Forms is then arranged in Microsoft Excel and inputted into the model in SmartPLS 4. Next, using the Partial Least Squares algorithm, the application processes

the data and provides a final model with path coefficients and model evaluation results that must be tested with inner model tests, outer model tests, and model goodness-of-fit tests. In the outer model test, several tests are conducted such as the loading factor test, reliability, average variance extracted (AVE), and several other tests (Rachman, 2021). In the inner model test, two tests will be conducted, namely Multicollinearity between latent variables and the T-test (significance of path coefficient) (Hidayat, n.d.-b). Finally, in the model goodness-of-fit test, tests such as R square, Q square, F square, Linearity, and others will be conducted (Hidayat, n.d.-a). The results of these tests are summarized in Microsoft Excel and will not be displayed here. Next, the decisions taken from the above test results and the weighted model will be explained.

Testing on sample data

Based on the results of the data processing and evaluation of the tests above, it is decided that the model created is not yet sufficient to represent the population, is not reliable, and is not good enough to be applied in the real world. On the other hand, the created model will be sufficient as a conceptual model for creating the real index because in the real case, the population for testing is larger and more comprehended which in this paper is not done yet.

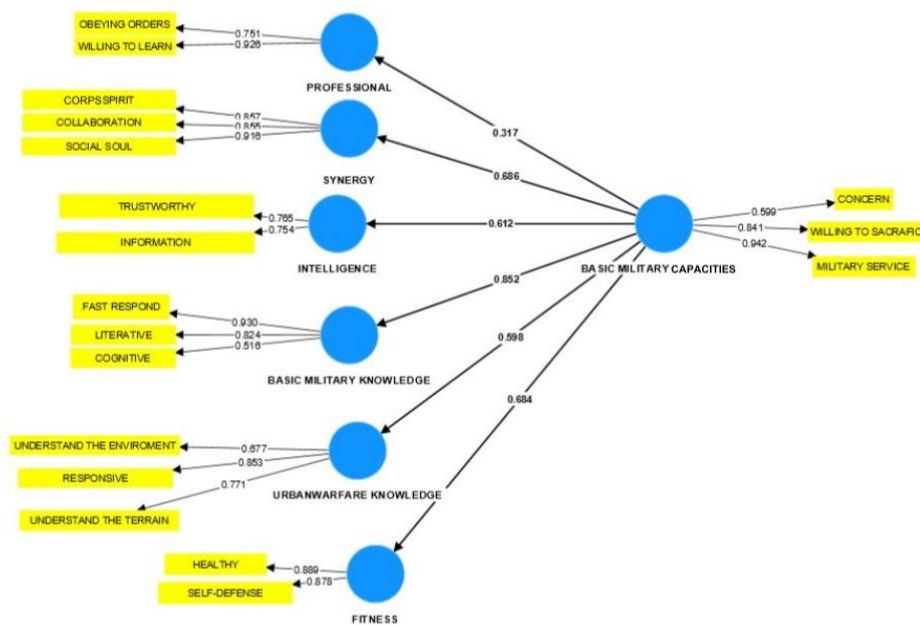


Figure 2. Weighted Model (Hidayat, n.d.-a)

In the real measurement when this model developed there were some distinctions between the measurement and our test. First, in this test, the process stops at formulating the mathematical model by weighting the tree criteria model whereas in the real measurement, the process continues by choosing a reliable and valid population to represent some region in Indonesia. Secondly, in this test, the created model is not sufficiently good yet where we assumed it was. For the real measurement, the model should be evaluated clearly and comprehensively so that the model is reliable. So, it will be assumed that this testing model is sufficiently good to meet the evaluation criteria. The next step is weight normalization for formulating the concept mathematical model of the index. The weights in the path coefficients will be normalized using the normalization definition in linear algebra. Normalization in linear algebra refers to the

process of transforming a vector into a unit vector or one with a length of 1. This normalization definition is chosen because the addition of each weight and variable multiplication can essentially be viewed as a linear combination that can be expressed as a vector. Furthermore, the weight normalization table will be displayed as follows:

Table 4. Weight Normalization

Latent Variable	Weight	Normalized Weight
Professional	0.32	0.08
Synergy	0.69	0.18
Intelligence	0.61	0.16
Basic Military Knowledge	0.85	0.23
Urban Warfare Knowledge	0.60	0.16
Fitness	0.68	0.18

The same process is then applied to each latent variable in the inner model and the indicators in the outer model. As a result, a mathematical formula can be formulated for the construction of the BMCI measurement index and the interpretation table, as follows:

Mathematical Concept Formula for Basic Military Capacity Index

$$\text{BMCI} = \text{Readiness of the People} = \text{Basic Military Capacity}$$

Structural Testing Model:

P = Professional

B = Synergy

I = Intelligence

PDM = Basic Military Knowledge

PUW = Urban Warfare Knowledge

K = Fitness

$$\text{Basic Military Capacity Index} = P * 0.08 + B * 0.1 + I * 0.16 + \text{PDM} * 0.23 + \text{PUW} * 0.16 + K * 0.18 + \text{error } (\zeta)$$

Testing Model:

$$P = \text{Obeying orders} * 0.448 + \text{Willing to Learn} * 0.551 + \text{error } (\epsilon)$$

$$B = \text{Korps Spirit} * 0.326 + \text{Collaboration} * 0.325 + \text{Social Spirit} * 0.348 + \text{error } (\epsilon)$$

$$I = \text{Information} * 0.496 + \text{Trustworthy} * 0.503 + \text{error } (\epsilon)$$

$$\text{PDM} = \text{Cognitive} * 0.227 + \text{Literacy} * 0.409 + \text{Fast Response} * 0.362 + \text{error } (\epsilon)$$

$$\text{PUW} = \text{Understand The Terrain} * 0.335 + \text{Responsiveness} * 0.294 + \text{Understand The Environment} * 0.370 + \text{error } (\epsilon)$$

$$K = \text{Self Defense} * 0.496 + \text{Healthy} * 0.503 + \text{error } (\epsilon)$$

Basic Military Capacity Index Model for Indonesia:

$$\text{Basic Military Capacity Index} = (\text{Obeying orders} * 0.448 + \text{Willing to Learn} * 0.551) * 0.08 + (\text{Korps Spirit} * 0.326 + \text{Collaboration} * 0.325 + \text{Social Spirit} * 0.348) * 0.1 + (\text{Information} * 0.496 + \text{Trustworthy} * 0.503) * 0.16 + (\text{Cognitive} * 0.227 + \text{Literacy} * 0.409 + \text{Fast Response} * 0.362) * 0.23 + (\text{Understand The Terrain} * 0.335 + \text{Responsiveness} * 0.294 + \text{Understand The Environment} * 0.370) * 0.16 + (\text{Self Defense} * 0.496 + \text{Healthy} * 0.503) * 0.18 + \text{Total error } (e)$$

$$\text{Basic Military Capacity Index} = \text{Obeying orders} * 0.03787 + \text{Willing to Learn} * 0.04669 + \text{Korps Spirit} * 0.05967 + \text{Collaboration} * 0.05953 + \text{Social Spirit} * 0.06378 + \text{Information} * 0.08103 + \text{Trustworthy} * 0.08221 + \text{Cognitive} * 0.05166 + \text{Literacy} * 0.09311 + \text{Fast Response} * 0.08249 +$$

Understand The Terrain * 0.05345 + Responsiveness * 0.04693 + Understand The Environment * 0.05913 + Self Defense * 0.09066 + Healthy * 0.09179 + Total error (e)

Table 4. Table of BSCI Measurement Interpretation (Republic of Indonesia National Defense Institute, 2015)

Scale 100	Scale 5	Qualitative Scale
< 40	< 2	Very Low Or Very Poor
40-59	2,0-2,9	Low Or Poor
60-79	3,0-3,49	Fairly High Or Fairly Good
80-89	3,5-3,99	High Or Good
>= 90	>= 4	Very High Or Very Good

Although collecting limited data and collecting data from a population with unclear boundaries can reduce the validity and reliability of the analysis results in the above model, the model results can be used as a conceptual model to provide an overview for further research to develop or apply the same approach to create a PLS-SEM model. The conceptual model created from the PLS-SEM model results can help further develop to understanding of the relationship between relevant variables and find initial hypotheses for further testing. Additionally, the conceptual model can also provide ideas for designing future studies using larger and more representative samples, resulting in more valid and accountable analysis results. However, it should be noted that the use of the conceptual model is only a preliminary overview and cannot be used as a basis for making significant business or public policy decisions. To make it clear, in this research, there is no measurement done because the goal of this research is just to make the conceptual model. By the testing done above, the conceptual model has been considered applicable for real measurement. However, the use of this model must be carefully accompanied by adequate data collection from a population with clear boundaries to ensure more valid and accountable analysis results.

CONCLUSIONS, RECOMMENDATIONS, AND LIMITATIONS

Through this study, it can be concluded that a conceptual index measurement model for Basic People's Military Readiness has been created based on the *Sishankamrata* concept in the form of the Basic Military Capacity Index. This model can be directly utilized for actual measurements. The conceptual model above provides a foundation for further studies on measuring *Sishankamrata* readiness in Indonesia. It is hoped that better and more sustainable measurement methods can be developed based on this model, which can be utilized by the Indonesian National Armed Forces and the National Defense Agency to ensure Indonesia's readiness against future threat dynamics.

In this study, several limitations need to be addressed. First, the analysis in the above model is based on limited data, which may not accurately represent the entire population. Therefore, the results should be interpreted with caution due to the small sample size. Second, the data collected from Google Forms may not be comprehensive enough to accurately capture all relevant variables and their relationships. This can

impact the validity and reliability of the model. Finally, the population boundaries in the model are not clearly defined, which can introduce bias and limit the generalizability of the findings to specific contexts or regions.

These limitations can be further addressed in future research by improving the validity and reliability of the model. Future studies should aim to collect data from a larger and more representative sample to ensure more robust and applicable findings for the target population. Additionally, researchers should consider using multiple data collection methods, such as surveys, interviews, and observations, to gather comprehensive and diverse data. This will provide a more holistic understanding of the variables and their relationships. Lastly, clearly defining the population boundaries is crucial to establish the context and scope of the research. This involves specifying the target population and ensuring that the data collection process covers a representative sample within those boundaries.

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