JOURNAL OF CULTURAL ANALYSIS AND SOCIAL CHANGE

Journal of Cultural Analysis and Social Change,
2025, 10(2), 1527-1537
ISSN: 2589-1316

Analysis of the Effect of Renewal Capital on Competitive Advantage Through Heptahelix Managerial Performance in Indonesian Navy in Riau Islands Province

Imam Makmur Saragih Sidabutar[1]*, Setyo Widagdo[2], Fadillah Putra[3], Setyo Tri Wahyudi[4]

[1] *Program Studi Ilmu Ketahanan Nasional , Universitas Brawijaya,* INDONESIA
[2] *Program Studi Ilmu Hukum,Universitas Brawijaya,* INDONESIA
[3] *Program Studi Kepemimpinan dan Inovasi Kebijakan , Universitas Brawijaya,* INDONESIA
[4]*Program Studi Ekonomi Keuangan dan Perbankan , Universitas Brawijaya,* INDONESIA

***Corresponding Author:** mammssidabutar@student.ub.ac.id

Citation: Sidabutar, I. M. S., Widagdo, S., Putra, F. and Wahyudi, S. T. (2025). Analysis of the Effect of Renewal Capital on Competitive Advantage Through Heptahelix Managerial Performance in Indonesian Navy in Riau Islands Province, *Journal of Cultural Analysis and Social Change*, 10(2), 1527-1537. https://doi.org/10.64753/jcasc.v10i2.1852

Published: November 14, 2025

ABSTRACT

This study aims to determine how the analysis of the influence of Renewal Capital on competitive advantage through Heptahelix managerial performance in the Indonesian Navy in the districts and cities of Riau Islands province. Research methods used descriptive and causal explanatory methods. The Data were analyzed using Structural Equation Modeling (SEM). The research uses an explanatory research approach that is a research approach predicting causal relationships over several variables, while the paradigm used is positivism research based on quantitative research for measuring constructs that form conceptual models and analyzing the influence of one construct with another (Creswell, 2013). Based on the results of the study showed that Renewal Capital does not significantly affect the Competitive Advantage. This finding shows that the hypothesis proposed that Renewal Capital has a significant effect on Competitive Advantage is unacceptable. This is because the technology of the main tool of the weapon system is mostly imported and does not have the ability to create domestic alutista technology products to replace obsolete alutista technology so that most of the existing alutista is old enough. So the expected implication is that the Navy should be able to create its own alutista technology using local products so that renewal opportunities that create innovation and can also develop the domestic alutista technology industry in achieving the manufacture of alutista technology and more sophisticated marine technology.

Keywords: Competitive Advantage, Heptahelix Managerial Performance and Renewal Capita

INTRODUCTION

In maintaining the defense of Indonesia's maritime territory by performing synergy, synergy means joint activities or operations. Therefore, synergy in development means the integration of various elements of development that can produce better and greater output. According to the theory of synergy (Stoner & Wankel, 1986), the best level of cooperation is synergistic, namely high cooperation, mutual trust, and integrated so as to produce a greater output than the sum of the output of each party. Synergy cooperation in this research is different from the theory in other research where in this research synergize the combined involvement of the role of the media, technology, universities, community, environment, industry and government as a novelty in this research called Heptahelix managerial performance in the field of Defense and naval security.

In an effort to integrate elements of national strength as a state defense action can be done through Heptahelix synergy where Pentahelix strategy includes Academic, Business, Community, Media, and government (ABCMG)

combined with elements of Technology and the environment has an important role in maintaining the integrity of the Republic of Indonesia which is a novelty in order to overcome the global shift that occurs in various fields that rely more on war with technological sophistication (cyber war) as a form of modern war today. Otley (1999) said that performance refers to something related to the activity of doing work in this case includes the results of work achieved. Managerial performance is defined as the systematic integration of effort, supervision, and evaluation, finance and employee performance within an explicit framework that relates to the objectives of the company (Russell, 1984). The performance referred to in this study is the performance (performance) is not the output of work that can be achieved by a person or group of people in an organization, in accordance with the authority and responsibility of each but the performance referred to in this study is the performance of individuals in managerial activities. Personal performance includes eight aspects, namely planning, Investigation, Coordination, evaluation, supervision, supervision, staff arrangement, and representation (Mahoney et al., 1963).

The success of the organization in developing managerial performance depends on the treatment of attitudes towards Intellectual Capital (Usoff et al., 2002). Synergy cooperation in this study is different from the theory in other studies where in this study synergize between the combined involvement of the media, technology, universities, community, environment, industry and government as a novelty in this study called Heptahelix managerial performance in the field of Defense and naval security. Stewart (2010) said a healthy company is a company that has intellectual capital and networks rather than organizational hierarchy is a good organizational design. Intellectual capital is based on human-centered capital and the driving force for relational and structural components (Edvinson and Malone, 1997; Sveiby, 1997; Roos and Roos, 1997), Brooking (1998). Edvinson (1997) and Sullivan (1999) recognized intellectual capital as a set of intangible assets such as resources, competencies and capabilities that enhance organizational performance and also generate value creation. The intellectual capital Model is also based on human capital, structural capital and social capital (McElroy, 2002), customer capital, structural capital and spiritual capital (Ismail, 2005).

In terms of managerial performance with the heptahelix model, the possession of qualified intellectual capital is very necessary, so it is expected that the Indonesian National Army, especially the Indonesian National Navy, is expected to excel in competing with other countries. According to Bataineh et.al. (2011), competitive advantage in the new economy is shifting from material and Financial which are tangible assets to intangible and non-financial assets. Assets in question in the form of natural resources, labor and capital, human resources have minimized the significance conditions that exist in addition to the importance of intangible inputs, such as information, intellectual capital and knowledge, increased and skills of people who make products, and the marketing power of companies to sell products which are factors that affect competitive advantage (Bataineh et al, 2011).

Competitive advantage is achieved when an organization expands or acquires a set of attributes that allow it to perform better than its challenger (Wang, 2014). De Pablos (2006) explains that the competitive advantage of a transnational organization lies largely in its ability to identify and transfer strategic knowledge between its geographically dispersed and diverse locations. In his research Yeh-Yun Lin, C., & Edvinsson, L. (2008) said that Finland is one of the most developed information societies in the world with an internet penetration of 67 percent (process Capital). The number of mobile phone subscribers and internet connections per capita in Finland is among the highest in the world (human capital and process capital). With the possession of qualified intellectual capital, it is expected that the Indonesian National Army, especially the Indonesian Navy, is expected to excel in competing with other countries. According to Bataineh et.al. (2011), competitive advantage in the new economy has shifted from material and financial assets that are tangible to intangible and non-financial assets. Traditional factors of production, such as natural resources, labor and capital, human resources have minimized the existing significance. At the same time the importance of intangible inputs, such as information, intellectual capital and knowledge, is increasing. The real value lies in the knowledge and skills of the people who make the product, and the marketing power of the company to sell the product which are the factors that influence the competitive advantage (Bataineh et al, 2011). The real wealth of an organization should be sought in its people, knowledge and skills, internal processes and corporate reputation (Bataineh et al, 2011).

Universities or academics serve as drafter to assist and implement marine development in terms of Strategic Defense and marine security from threats, challenges, obstacles and disturbances from the physical and non-physical side. The community serves as an acceleratorwhich is to supervise and partner the Indonesian National Army Navy to maintain the defense and security of marine areas through direct participation. The environment as an asset of marine resources that must be preserved in terms of habitat and cleanliness in the Marine Area of the Republic of Indonesia. Industry serves as an enabler is the private sector that plays a role in the implementation of systems and tools of Defense and security of marine areas in producing fleet combat tools in maintaining Indonesian marine areas in order to dispel and overcome threats, challenges, obstacles and disturbances in the Marine Area. The government as a regulator in planning, implementing, monitoring, controlling, promoting the allocation of all forces owned both from Natural Resources in the Sea and the community through the implementation of the duties and functions of the Indonesian Navy and other government apparatus in terms of

maintaining Defense and security in the field of sea. To achieve maximum heptahelix managerial performance, of course, centered on intellectual Capital (intellectual Capital; IC).

Stewart (2010) said a healthy company is a company that has intellectual capital and networks rather than organizational hierarchy is a good organizational design. Human capital is an important component (Edvinson and Malone, 1997; Sveiby, 1997; Roos and Roos, 1997) and the driving force for relational and structural components. Brooking (1998) says intellectual capital consists of intangible assets which include markets, intellectual property, infrastructure, and human-centered assets. Edvinson (1997) and Sullivan (1999) recognize intellectual capital as a set of intangible assets such as resources, competencies and capabilities that enhance organizational performance and also generate value creation. McElroy's intellectual capital Model is based on human capital, structural capital and social capital (McElroy, 2002). Ismail argued that intellectual capital is based on human capital, customer capital, structural capital and spiritual capital (Ismail, 2005). Yeh-Yun Lin & Edvinsson (2008) said that the general perception of Nordic countries has a high level of national intellectual capital in the form of human capital, renewal capital and process capital. Their research findings clarify the status of the Nordic countries ' national intellectual capital, thus providing valuable information for stakeholders and policymakers to formulate effective strategies to build sustainable national competitiveness. To do this, it is necessary to outline the proposed IC framework and collect relevant and valid IC indicators. Rembe (1999), in collaboration with others, examined the factors that invited foreign investment in Sweden and proposed a strategic plan for the development of human capital, market capital and process Capital, and became a future renewal of Sweden. Following Rembe, several researchers undertook similar initiatives to assess the ICS of the state of Israel (Pasher, 1999), the Arab region (Bontis, 2004) and Sweden (Spring Project, 2002). Firer and Williams (2003) detected a negative relationship between HIC and the intellectual coefficient of added value in the South African context. On the other hand, other studies reveal that there is no relationship between IC-specific components and performance (Joshi et al., 2013).

In general, only two concepts can be attributed to the integration of supply chains in the context of ports, namely intermodalism and organizational integration, which seem to have attracted widespread attention in the academic community. The word 'intermodalism ' is usually associated with the interrelationship between different modes of transport and nodes, not only as a technology but also as an Interorganizational process. Muller (1999) said the framework of system thinking is indispensable and process integration for intermodalism and also organizational integration and partnership before achieving an effective intermodal system (Hayuth, Y., 1987)

Yeh-Yun Lin, C., & Edvinsson, L. (2008) also said in recent years, there has been a national focus on product research and development (renewal capital), with particular emphasis on information technology. Finland is one of the world's most advanced information societies with internet penetration of 67 percent (process Capital). The number of mobile phone subscribers and internet connections per capita in Finland is among the highest in the world (human capital and process capital). With the possession of qualified intellectual capital, it is expected that the Indonesian National Army, especially the Indonesian Navy, is expected to excel in competing with other countries. According to Bataineh et.al. (2011), competitive advantage in the new economy has shifted from material and financial assets which are tangible to intangible and non-financial assets. Traditional factors of production, such as natural resources, labor and capital, human resources have minimized the existing significance. At the same time the importance of intangible inputs, such as information, intellectual capital and knowledge, is increasing. The real value lies in the knowledge and skills of the people who make the product, and the marketing power of the company to sell the product which are the factors that influence the competitive advantage (Bataineh et al, 2011). The real wealth of an organization should be sought in its people, knowledge and skills, internal processes and corporate reputation (Bataineh et al, 2011).

Competitive advantage is achieved when an organization expands or acquires a set of attributes that allow it to perform better than its challenger (Wang, 2014). De Pablos (2006) explains that the competitive advantage of a transnational organization lies largely in its ability to identify and transfer strategic knowledge between its geographically dispersed and diverse locations. While Bontis et al. (2000) related competitive advantage to human capital and argued that human capital helps to maintain competitive advantage when employees add value with their unique characteristics. They also say that the more unique competencies an individual has in an organization, the more competitive advantage that organization has because valuable and scarce employees create more value.

MATERIAL AND METHODS

The objects in the study are Renewal Capital, and Heptahelix managerial performance and competitive advantage. Research methods used descriptive and causal explanatory methods. The Data were analyzed using Structural Equation Modeling (SEM). The research uses an explanatory research approach, which is a research approach predicting causal relationships over several variables, while the paradigm used is positivism research based on quantitative research for measuring constructs that form conceptual models and analyzing the influence of one construct on another (Creswell, 2013). This study examines the effect of Renewal Capital on Competitive

Advantage mediated by Heptahelix managerial performance by conducting a survey on the National Army Navy in districts and cities in the province of Riau Islands. The difference with previous studies is that this study combines the concept of managerial performance with the concept of Heptahelix which combines Pentahelix with technology and the environment so that the concept of managerial performance Heptahelix is a form of State defense and also the novelty of this study as an effort to defend the state in a non - physical form based on Law No.3 of 2002 article 9 paragraph (2).

The population used in this study is the entire apparatus at the level of Middle Management in 5 (five) bases of the Indonesian National Army Navy Riau Islands province as many as 1,540 people consisting of LANTAMAL 500 people, all LANAL 400 people and Navy posts as many as 640 people. Based on the formula of Isaac and Michael (1995), the number of samples that can be taken from the population with a singnifikansi level of 5% is as many as 195 people. Of the 195 questionnaires distributed, but the questionnaires returned only 125 people and questionnaires that can be processed only 98 people out of 125 people. The most ideal sample size is 30 to 500 respondents (Roscoe, 1975). Sampling method with purposive random sampling method or purposive random sampling is a sample taken randomly based on certain criteria in this case are in the Middle Management in the Indonesian National Army Navy districts and cities in the province of Riau Islands.

The type of data used is primary data. Primary Data obtained directly from data sources collected specifically and directly related to the problem under study. Primary Data was obtained by using a list of questions that have been structured with the aim of collecting information from respondents

Data collection techniques used in this study are surveys and questionnaires. The survey was conducted to observe the Indonesian National Army Navy with the level of position in the Middle Management in charge of better understanding the problems and deficiencies that exist when ATHG (threats, challenges, obstacles and disturbances) arise in addition to also contacting the role of External in terms of clarification of the problems, deficiencies and involvement of the Indonesian National Army Navy to the Local Government, Industry, Academia, society and related officials. Questionnaires were given to respondents directly (contact person) with a variety of questions containing matters relating to the purpose of the study. Questionnaires distributed to respondents, is the main instrument derived from the results of theoretical and empirical studies. The questionnaire will first be tested to determine its validity and reliability, to the Indonesian National Navy soldiers who are at the middle management level.

Evaluation Of The Structural Model (Inner Model)

Assessment of structural models through the value of R-Square (R2) to endogenous variables and Stone-Geisser (Q2) for predictive relevance.

a. Coefficient Of Determinant (R2)

The value of R-Square for endogenous variables of Data Processing From Smart PLS in this study can be seen in Table 1 as follows:

Table 1 R-Square Values

No.	Variable	R Square	R Square Adjusted	Strength
1	MPH	0.748	0.734	Strong
2	CA	0.645	0.622	Moderate

Source: Data Processed By The Author (2024).

Based on Table 1 can provide information about the value of R-Square (R2) for the variable Managerial Performance Heptahelix (MPH) of 0.748 . This means that the exogenous variable, namely Renewal Capital (RC) contributes to the Heptahelix Managerial Performance variable by 74.8% and the rest is explained by other variables that are not studied in this study, so that it can be a suggestion for further research and the value of R-Square (R2) for the endogenous Competitive Advantage (CA) variable by 0. 622. This means that the variables exogenous Human Capital (HC), Structural Capital (SC), Relational Capital(REC), Process Capital (PC) and Renewal Capital (RC) contributed to the variable Competitive Advantage (CA) of 62.20% and the rest is explained by other variables that were not studied in this study so that it can be a suggestion for further research.

b. Predictive Relevance (Q2)

Q2 value of structural testing results using WarpPLS aims to validate the model by showing the value of predictive relevance. The value of Q2 can be taken from two approaches, namely cross validated communality and cross validated redundancy in assessing the value of how good observations produced by the model and the estimation of its parameters. The value of cross validated communality is obtained through the estimation of data points using the value of latent variables while the value of cross validated redundancy is obtained by estimating the block under study using latent variables as predictions (Akter et al., 2011).

Based on Table 2 below which uses cross-validated redundancy approach, it can be seen that the value of Q2 in endogenous variables such as Managerial Performance Heptahelix (MPH) is 0.718 and Competitive Advantage (CA) has a value of 0.521, where all Q2 values in the calculation through blindfolding show a value greater than 0 (Zero), then the validity of the predictive relevance of fit from these variables can be included in the strong Category. So it can be said that based on the results of blindfolding with cross-validated redundancy approach, the model formed has predictive relevance and the structural model is fit.

Table 2 Construct Cross-Validated Redundancy Test Results

No.	Latent Variable	RMSE	MAE	Q^2_predict
1	MPH	0.565	0.391	0.700
2	CA	0.731	0.562	0.486

Source: Data Processed By The Author (2024).

a. Model Fit Test

As mentioned in the previous chapter that the validity and reliability of questionnaires that have been tested indicate that all indicators used are valid and reliable (reabel). Furthermore, tests were conducted for hypothesis testing which aims to determine the magnitude of the influence of variable Renewal Capital (RC) to Competitive Advantage (CA) through Managerial Performance Heptahelix. Furthermore, structural equation model analysis will be done if it meets the Goodness of Fit test Model with SRMR value less than 0.10 or less than 0.08 (Hu & Bentler,1999). As for this study, the test results of the fit model can be seen in Table 3. as follows:

Chart 3. Model Fit Test Results

No.	Model Fit	Saturated Model	Estimated Model
1	SRMR	0.090	0.090
2	d_ULS	7.682	7.682
3	d_G	8.447	8.447
4	Chi-Square	2942.015	2942.015
5	NFI	0.544	0.544

Source: Data Processed By The Author (2024).

In Table 3. it can be seen that the output shows the criteria of godness of fit model is met with a value of 0.090 below 0.10.

Renewal Capital has no significant effect on Heptahelix's Managerial Performance.

The test results show that the magnitude of the influence or the estimated value of the coefficient of Renewal Capital path to the Managerial Performance of the Heptahelix is 0.023 with a value of p-value = 0.698, which means that it is greater than the significance stage of the p-value of 0.05 and the t count is 0.388 ° 1.96, so it is not proven to state that Renewal Capital does not have a significant effect on the Managerial Performance of the heptahelix. This finding indicates that the hypothesis proposed that Renewal Capital has a significant effect on the Managerial Performance of Heptahelix is unacceptable.

This study found that there is no collaborative relationship between government-university-industry-community in creating marine defense technology and marine environmental technology because alutista technology is imported directly from the alutista-producing industry from other countries because the dominant role is performed by the government in this case the Ministry of defense so that there is no innovation process on technology in the country that has been produced. This is contrary to the results of research conducted by (Göker, 2000) who said innovation is the product of 2 complex relationships that exist between the three worlds in question and can only be represented by the triple helix. The Model provides a very competent explanation of the nature of the innovation process and the role of the three closely interrelated worlds in this process (Göker, 2000).

But this study is in line with the findings (Virkkala et al., 2014) who say the dominant role of government to power these universities and industries may also limit the capacity of these actors to trigger and enhance innovative transformation (Virkkala et al., 2014) where in this study found the ability of the Navy is only limited to making improvements to the technology of marine defense equipment and Marine Environmental Technology in the event of damage but to create their own can not be done by the Navy and most of the technology of marine defense equipment and marine environmental technology imported from other countries so that the ability to renew in producing domestically made products has not been qualified.

The study also found that government participation in utilizing innovation activities mostly occurs in cases of market failure (Sarpong et al., 2017) where this study found local products made by technology itself is less desirable to use so as not to cause public interest to also participate in using local products because they are also considered to be of poor quality. In addition, in times of national emergency, the role of the president is to dominate the Navy to act or control the situation and conditions that occur. The president as head of state and head of government can mobilize the entire society, universities and industry in the face of war. This study contradicts Varblane et al. (2008) who argue that many innovations are investigated mostly in fields that serve the interests of the state such as the military and aerospace fields. In a balanced regime, the converging institutional environments i.e. university, industry and government have overlapping areas that are considered to be the best environment for innovation (Ranga & Etzkowitz, 2013). In the Triple Helix III model, this study corresponds to (Etzkowitz & Leydersdorff, 2000; Etzkowitz, 2008; Varga & Erdös, 2019) which found that governments encourage university involvement in innovation systems and propose incentives for universities to go further than traditional missions by leaving decision-making to regional or local authorities or other organizations (Etzkowitz & Leydersdorff, 2000; Etzkowitz, 2008; Varga & Erdös, 2019) in addressing the situation if athg at sea occurs from another country. This study is not in line with Sarpong et al. (2017) where there is no direct relationship established between universities and industry to increase knowledge capitalization in renewing and the Navy headquarters dominate in terms of strengthening their national/international innovation networks continuously so there is no art-based research (knowledge production) and art-based innovation (knowledge application) that provide opportunities to develop interdisciplinary and transdisciplinary configurations of science-based research output and promote creativity knowledge and innovation so that creativity does not arise in maintaining and developing the continuity of innovation in the long term, this is contrary to the findings (Carayannis & Campbell, 2014).

In the TNI, the ability for renewal is not formed from collaboration with the university-industry-society-media-government but from the authoritarian top leadership who decides what to do by his subordinates in the region in terms of overcoming the situation of ATHG attacks and on the problems of the technology used so that the democratic process that brings together knowledge and innovation cannot evolve in a mode and way that strengthens, this is contrary to the findings of Carayannis et al. (2009)) and (Carayannis et al., 2015).

Renewal Capital has a significant effect on Competitive Advantage.

The test results showed that the magnitude of the effect or the estimated value of the coefficient of Renewal Capital path to Competitive Advantage amounted to -0.003 with a value of p-value = 0.968 which means greater than the significance stage of p-value 0.05 and t count 0.041 ° 1.96, so it is proven to state that Renewal Capital does not significantly affect the Competitive Advantage. This finding shows that the hypothesis proposed that Renewal Capital has a significant effect on Competitive Advantage is unacceptable.

This study found that Renewal Capital does not significantly affect the Competitive Advantage. This is because the technology of the main tool of the weapon system is mostly imported and does not have the ability to create domestic alutista technology products to replace obsolete alutista technology so that most of the existing alutista is old enough. This is in line with what Supandi (2019) said. Of course, this is very dangerous for countries that import alutista from other countries because other countries can find out the weaknesses of alutista technology products ordered because they make them. Even today, developed countries prefer to build their industries through cooperation with other countries rather than doing it independently because the costs are cheaper . This is inseparable from various policy trends in the form of tightening budgets, increasing research and development costs, as well as increasing the intensity of competition in the Defense Industry Market . The globalization of the defense industry, which has led to a change in the dynamics of arms procurement from independent procurement to interdependence, is called one of the phenomena of intensive cooperation and collaboration in arms production. One of the basic elements in a country's defense efforts is military power, the government is constantly trying to improve the quality and quantity of Defense to prevent things that can disrupt the stability of the country . The role of the main tool of the weapon system is considered very important or vital because in addition to being a national defense tool, the main tool of the weapon system is also an important part in maintaining the security of a country from unwanted threats. The role of the main tool of the weapon system is all forms of tools and components that serve as a means of national defense used by the military, in organizing security processes and preventing conflicts and military conflicts that endanger the sovereignty of the state and are useful in developing a country's military professionalism, because one of the characteristics of a modern army is a soldier who can understand a variety of weapons whose technology continues to develop over time. The establishment of an independent arms industry is also one of the steps pursued by every country, including Indonesia, as an effort to maintain state sovereignty. Because if the main tool of the weapon system owned is damaged, lacking, or weak, there will be risks such as invasion by other countries or seizure of territory that can threaten the defense and security of the country (Prahasto, B. A.,2023).

Therefore, the welfare of the people must remain the focus of the government. A country whose population is poor in large numbers will also be vulnerable to foreign intervention that is fatal to national defense and security. The problem of procurement of military equipment is the limited budget in the government considering that most of the existing military equipment is quite old, preferably transparent and requires modern and sophisticated military equipment that is adapted to the Times and has Human Resources who are experts in their fields. (Sundari et al., 2022).

The term strategic renewal derives from the evolutionary model of strategic change (Nelson & Winter, 2002; Floyd & Lane, 2000; Barnett & Burgelman, 1996; Huff et al., 1992; Burgelman, 1983a), who considered renewal as an iterative process that influences beliefs, actions, and learning to align organizational strategies with changing environmental circumstances (Floyd & Lane, 2000). In simple terms, strategic renewal theory recognizes the importance of maintaining adaptability, by means of leveraging new and existing competencies (Floyd & Lane, 2000).

Influence of innovation and learning on the architecture of organizational competitive advantage, increased customer expectations, rapid technological change, and unpredictable customer behavior, organizations need to create innovative capabilities to garner competitive advantage (Choudhury, 2010). This study contradicts the findings of the quintuple helical innovation Model where the formulation of long-term innovative strategies and policies is influenced by the discovery and understanding of the importance of new green technologies and innovative processes as irreplaceable resources to meet Sustainable Development (Provenzano et al., 2016). The helical innovation Model within the framework of the national innovation system is explained by the discovery and understanding of the importance of new green technologies and innovative processes as an irreplaceable resource for meeting Sustainable Development (Provenzano et al., 2016) or also called the helical innovation model within the framework of the national innovation system. Research on the revolution in Military Affairs (RMA) and competitive advantage, including Majerowicz & De Maderios (2018) Reviews China's interpretation of the revolution in Military Affairs and China's perception of its backwardness as well as its possible catch-up and evolution in the most advanced segments of this production chain through domestic enterprises and domestic innovation.

Also the results of this study contradict the results of the findings of Chatziilias (2021) seeking to highlight the main weaknesses of the American RMA and their implications for the efforts of its main competitors, Russia and China. Raska (2022) argues that the new wave of 'artificial intelligence-driven RMA' differs in political, strategic, technological, and operational diffusion paths and patterns. Samaras et al. (2019) explained that defense can lead the way for economic reasons as well as as a result of military issues, advanced technologies, and operational strategies that enhance military capabilities and competitive advantage. Hosseini et al. (2018) conducted research to identify and assess competitive advantage factors in New Product Development. A small country cannot carry out a revolution in Military Affairs (RMA) due to the large amount of resources required and the limited chances of success. However, a small country can revolutionize what is limited in scope, and such changes but do not have a paradigm shift that leads to permanent changes such as warfare. Alutista owned by the navy most of the technology is imported so that this causes the availability of the number of alutista owned by the Navy to be limited even many alutista expired for use is not comparable to that of other countries. Of course, this dangerous condition in which revolutionary products in weapons systems ordered from other countries can cause importing countries to be dominated by exporting countries because they know the weaknesses or shortcomings of the technology they make themselves to be sold to other countries. This is consistent with findings that successful revolutions in Military Affairs (RMA) have an "expiration date" when, over time, the revolution's products - weapons systems that change the nature of war, become available on the market and eventually fall into the hands of the enemy (Yogev et al., 2022).

In the TNI, there is no effort to reduce the environmental impact or greenhouse gas emissions from military operations. The Navy has also not been able to advance technologies and operational strategies that enhance military capabilities, competitive advantage, and deadly combat on the battlefield. This contradicts the findings (Samaras et al., 2019) that said non-state actors, belligerent nations, and other adversaries may not appreciate reductions in environmental impacts or greenhouse gas emissions from military operations. However, defense-led energy innovations from the U.S. and NATO member states will only advance technologies and operational strategies that enhance military capabilities, competitive advantage, and lethal combat on the battlefield of conflict (Samaras et al., 2019). Thus, the opportunity for organizational strategists to learn from the context of strategic practices that may be the most complicated and high-risk does not occur in the Navy plus the absence of innovation in the renewal of alutista engine technology and efforts to protect the environment through homemade technology so that this condition makes the Navy has not been able to achieve competitive advantage.

When compared to Modern Western countries, our Navy is still far behind. The philosophy of"war will essentially be an unhindered technical exercise for the Modern western state". Critical military strategists are wary

of such optimism because "[even] for modern Western nations, technology fosters the fantasy of a quick, easy, and decisive war: however, they still face a 'slow, bitter', and uncertain war" (Kornberger & Engberg-Pedersen, 2021).

CONCLUTION

has been described in the previous chapter, it can be stated some of the conclusions of this study as follows:

1. Renewal Capital does not significantly affect the Managerial Performance of Heptahelix. The government makes rules and sanctions of imprisonment if from the University, Industry, fishing community, Mass Media, the government itself, BAKAMLA and Water Police and other agencies that do not want to cooperate and assist the Navy in creating marine defense technology and marine environmental technology as a result of artificial domestic products and do not want to help the Navy in utilizing existing resources including creating quality human resources both from physical quality and non-physical quality. In addition, the government needs to set the selling price of marine defense technology and Marine Environmental Technology which is the result of domestic products made in Indonesia at a reasonable price if it can be cheaper than other countries but the quality is no less good than other countries. The University in question here is a university whose vision and mission is National Defense and technology.
2. Renewal Capital has a significant effect on Competitive Advantage. The government makes prohibitions or legal rules related to the import of marine defense technology and marine environmental technology but must create their own in the country by using industry and raw materials in the country. As well as making rules related to the Prohibition of budget currency that can be used to import Marine alutista technology and marine environment technology from abroad with a certain minimum limit, for example Rp. 1 billion per year only with provisions as needed and also with provisions if it is not able to be produced because of scarce raw materials or science that has not been qualified to produce these technologies and must be proven. If there is a violation of this provision, there is an indication of playing or corruption in using the government budget. The habit of importing goods and technology from abroad, especially those related to defense, is certainly dangerous for countries that import alutista from other countries because other countries can find out the weaknesses of alutista technology products ordered because they make them. Currently, most of the technology is imported, so this causes the availability of the number of alutista owned by the TNI AL to be limited and even many alutista that have expired for use are not comparable to those owned by other countries. Of course, this dangerous condition where revolutionary products in weapons systems ordered from other countries can cause importing countries to be dominated by exporting countries because they know the weaknesses or shortcomings of the technology they make themselves to be sold to other countries.
3. Based on the results and the existing discussion, the researcher can then add 1 (one) new dimension element to the concept of Managerial Performance Heptahelix and add other independent variables from the dimension of Intellectual Capital that is not used in this study and the results of this study bring Indonesia's preparation in making changes to reduce the risk of environmental damage on land (green economy) and at sea in particular (blue economy).

REFERENCES

Stoner, James A.F., & Charles Wankel, (1986). Management, Third Edition, Prentice-Hall International, Inc., Englewood Cliffs, New Jersey

Otley, D. (1999). Performance management: a framework for management control systems research. Management Accounting Research, 10(4), 363–382.

Mahoney, T. A. (1963). Development of managerial performance: A research approach. South-western Publishing Company.

Us off, C. A., Thibodeau, J. C., & Burnaby, P. (2002). The importance of intellectual capital and its effect on performance measurement systems. Managerial Auditing Journal, 17(1/2), 9–15.

Yeh - Yun Lin & Edvinsson (2008) mengatakan bahwa persepsi umum negara-negara Nordik memiliki tingkat modal intelektual nasional yang tinggi berupa human capital, renewal capital dan process capital.

Sveiby, K. (2001). A knowledge - based theory of the firm to guide in strategy formulation. Journal of Intellectual Capital, 2(4), 344 – 358.

Roos, G., & Roos, J. (1997). Measuring your company's intellectual performance. Long Range Planning, 30(3), 325–326

Brooking, A., Board, P., & Jones, S. (1998). The predictive potential of intellectual capital. International Journal of Technology Management, 16(1-3), 115-125.

Edvinsson, L. and Sullivan, P., (1996). Developing a model for managing intellectual capital. European Management Journal. 14(4): 356-364.

McElroy, M. W. (2002). Social innovation capital. Journal of Intellectual Capital, 3(1), 30–39.

Ismail, A.I., Rose, R.C., Abdullah, H. and Uli, J. (2010) 'The relationship between organisational competitive advantage and performance moderated by the age and size of firms', Asian Academy of Management Journal, Vol. 15, No. 2, pp.157–173.

McElroy, M. W. (2002). Social innovation capital. Journal of Intellectual Capital, 3(1), 30–39.

Bataineh, M. T. and Al Zoaby, Mohammad. (2011). The Effect of Intellectual Capital on Organizational Competitive Advantage: Jordanian Commercial Banks (Irbid District) An Empirical Study. Euro Journals, Inc.- International Bulletin of Business Administration.

Wang, C. H. (2014). How relational capital mediates the effect of corporate reputation on competitive advantage: Evidence from Taiwan high-tech industry. Technological Forecasting and Social Change, 82, 167-176.

Ordonez de Pablos, P. (2006). Transnational corporations and strategic challenges: An analysis of knowledge flows and competitive advantage. The Learning Organization, 13(6), 544-559.

Stewart, T. A. (2010). Intellectual Capital: The new wealth of organization. Crown Currency.

Brooking, A., Board, P., & Jones, S. (1998). The predictive potential of intellectual capital. International Journal of Technology Management, 16(1-3), 115-125.

Sullivan, P. H. (1999). Profiting from intellectual capital. Journal of Knowledge Management, 3(2), 132–143.

Remember, A. (1999). The Governmental invest in sweden agency – ISA: Report 1999. Stockholm: Halls Offset AB. Retrieved from: www.isa.seStewart, T. A. (2010). Intellectual Capital: The new wealth of organization. Crown Currency.

Pasher, E. (1999) The Intellectual Capital of the State of Israel, kal press: Herzliya Pituach, Israel.\Bontis, N. (2004). National intellectual capital index: a United Nations initiative for the Arab region. Journal of Intellectual Capital, 5(1), 13–39.

Spring Project (2002) http://cordis.europa.eu/data/PROJ_FP5/ACTIONeqDndSESSIONeq 21722200595ndDOCeq104ndTBLeqEN_PROJ.htm.

Joshi, M., Cahill, D., Sidhu, J., & Kansal, M. (2013). Intellectual capital and financial performance: an evaluation of the Australian financial sector. Journal of Intellectual Capital, 14(2), 264–285.

Muller, G. (1999). Intermodal transportation. Transportation Foundation and Intermodal Association of North America.

Hayuth, Y. 1987. Intermodality in Concept and Practice, Structural Changes in the Ocean Freight Industry. London: Lloyd's of London Press

Lin HF Lee HS, Wang DW (2009). Evaluation of factors influencing knowledge sharing based on a fuzzy AHP approach. J. Inf. Sci. 35(1):25-44.

Day, G. S., & Wensley, R. Assessing Advantage: A Framework for Diagnosing Competitive Superiority. Journal of Marketing, 52(2), 1–20. (1988). https://doi.org/10.2307/1251261

Animah, A. Pengaruh sistem informasi manajemen, human capital dan ketidakpastian lingkungan terhadap kinerja manajerial (studi kasus pada perusahaan koperasi di kota mataram, seleparang). Akbis: Media Riset Akuntansi dan Bisnis, 5(2), 155. (2021) https://doi.org/10.35308/akbis.v5i2.3998

Henri, J.-F. (2006). Management control systems and strategy: A resource-based perspective. Accounting, Organizations and Society, 31(6), 529–558.

Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. Strategic Management Journal, 28(13), 1319–1350.

Crossan, M.M., Lane, H.W. and White, R.E. (1999), "An organizational learning framework: from intuition to institution", The Academy of Management Review, Vol. 24 No. 3, pp. 522-537/

James, S.D., Leiblein, M.J. and Lu, S. (2013), "How firms capture value from their innovations", Journal of Management, Vol. 39 No. 5, pp. 1123-1155.

Kianto, A., & Ritala, P. (2010). The Knowledge-based Perspective on Dynamic Capabilities. In Strategic Reconfigurations. Edward Elgar Publishing.

Carnabuci, G. and Operti, E. (2013), "Where do firms' recombinant capabilities come from? Intraorganizational networks, knowledge, and firms' ability to innovate through technological recombination", Strategic Management Journal, Vol. 34 No. 13, pp. 1591-1613.

Ritala, P., Kianto, A., Vanhala, M., & Hussin ki, H. (2023). To protect or not to protect? Renewal capital, knowledge protection and innovation performance. Journal of knowledge management, 27(11), 1-24.

Nahapiet, J. and Ghoshal, S. (1998) 'Social capital, intellectual capital, and the organizational advantage', Academy of Management Review, Vol. 23, No. 2, pp.242–266.

Youndt, M. A., Subramaniam, M., & Snell, S. A. (2004). Intellectual capital profiles: An examination of investments and returns. Journal of Management studies, 41(2), 335-361.

Subramaniam, M. and Youndt, M.A. (2005), "The influence of intellectual capital on the types of innovative capabilities", Academy of Management Journal, Vol. 48 No. 3, pp. 450-463.

Ray, G., Barney, J.B. and Muhanna, W.A. (2004), "Capabilities, business processes, and competitive advantage: choosing the dependent variable in empirical tests of the resource-based view", Strategic Management Journal, Vol. 25 No. 1, pp. 23-37.

Reed, K.K., Lubatkin, M. and Srinivasan, N. (2006), "Proposing and testing an intellectual capital-based view of the firm", Journal of Management Studies, Vol. 43 No. 4, pp. 867-893.

Kaptanoglu, S., Stockton, D., & Ziarati, R. (2007). Sustaining competitive advantage through cooporative decision making in shipping industry in Turkey. Research Paper, TUDEV–Institute of Maritime Studies.

Güçlü, M. (2013). Cumhuriyet Dönemi Süreli Yayınlarda Yayımlanan Pîrî Reis İle İlgili Makalelerin Değerlendirilmesi. Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 1(35), 131-150.

Creswell, J.W. (2013), Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, book, SAGE Publications

Akter, S., D'ambra, J., & Ray, P. (2011). An evaluation of PLS based complex models: the roles of power analysis, predictive relevance and GoF index.

Göker A (2000) Prodüktivite, İnovasyon Yeteneği ve Teknoloji. www.inovasyon.org

Virkkala S, Mäenpää A and Mariussen Å (2014) The Ostrobothnian model of smart specialisation. Proceedings of the University of Vaasa, Reports 196.

Sarpong, D., AbdRazak, A., Alexander, E. & Meissner D. (2017) "Organizing practices of university, industry and government that facilitate (or impede) the transition to a hybrid triple helix model of innovation" Technology Forecasting & Social Change, 123, pp. 142-152.

Varblane, U., Ukrainski, K. & Mets, T. (2008) "Role of university-industrygovernment linkages in the innovation process of a small catching-up economy", Industry & Higher Education, Vol 22, No 6.

Ranga, M., & Etzkowitz, H. (2011). Creative Reconstruction: A Triple Helix–Based Innovation Strategy in Central and Eastern Europe Countries. In Theory and Practice of the Triple Helix Model in Developing Countries (pp. 249-282). Routledge.

Etzkowitz, H. (2008) "The Triple Helix: University-Industry-Government Innovation in Action", Routledg

Varga, A. & Erdös, K. (2019) "Handbook of Universities and Regional Development", Edward Elgar Publishing.

Carayannis, E. G., & Campbell, D. F. (2010). Triple Helix, Quadruple Helix and Quintuple Helix and how do knowledge, innovation and the environment relate to each other?: a proposed framework for a trans-disciplinary analysis of sustainable development and social ecology. International Journal of Social Ecology and Sustainable Development (IJSESD), 1(1), 41-69.

Supandi. (2019). Model for the Acceleration of Economic Development in PKT KSNT. Bogor: UNHAN 2020.

Prahasto, B. A. (2023). Product Development Strategy PT. Pindad in Improving the Indonesian Defence Industry. International Journal of Social and Management Studies, 4(4), 47-53.

Sundari, S., Yulivan, I., & Prakoso, L. Y. (2022). Implementation of Bank Indonesia's Monetary Policy on Procurement of Main Equipment of The Indonesian Armed Forces Indonesian National Armed Forces. A Journal of Vytautas Magnus University, 15(1).

Nelson, R. R., & Winter, S. G. (2002). Evolutionary theorizing in economics. Journal of Economic Perspectives, 16(2), 23-46.

Floyd, S W.and Lane, P J. (2000) Strategizing throughout the organization: managing role conflict in strategic renewal. The Academy of Management Review, 25, 1: 154-177.

Barnett, W. P., & Burgelman, R. A. (1996). Evolutionary perspectives on strategy. Strategic Management Journal, 17(Special Issue): 5-20.

Huff, A. S., Floyd, S. W., & Sherman, H. D. (2009). Strategic Management: Logic and Action John Wiley Sons. New York.

Barnett, W. P., & Burgelman, R. A. (1996). Evolutionary perspectives on strategy. Strategic Management Journal, 17(Special Issue): 5-20.

Choudhury, J. (2010). Performance Impact of Intellectual Capital: A Study of Indian IT Sector. International Journal of Business and Management, 5(9), 72.

Provenzano, V., Arnone, M., & Seminara, M. R. (2016). Innovation in the rural areas and the linkage with the Quintuple Helix Model. Procedia-Social and Behavioral Sciences, 223, 442–447.Majerowicz, E., & Medeiros, C. A. D. (2018). Chinese industrial policy in the geopolitics of the information age: the case of semiconductors. Revista de Economia Contemporânea, 22(01), e182216.

Chatziilias, A. (2021). Revolution in military affairs: The United States and its big competitors. HAPSc Policy Briefs Series, 2(2), 121-130.

Raska, M. (2015). Military innovation in small states: Creating a reverse asymmetry. Routledge.

Hosseini, A. S., Soltani, S., & Mehdizadeh, M. (2018). Competitive advantage and its impact on new product development strategy (Case study: Toos Nirro technical firm). Journal of Open Innovation: Technology, Market, and Complexity, 4(2), 17.

Yogev, H., Cohen, R. A., & Lewin, E. (2022). Revolution in military affairs-The operation mole cricket 19 as a case study for the technological race during the cold war. International Area Studies Review, 25(2), 138-156.

Samaras, C., Nuttall, W. J., & Bazilian, M. (2019). Energy and the military: Convergence of security, economic, and environmental decision-making. Energy strategy reviews, 26, 100409.

Kornberger, M., & Engberg-Pedersen, A. (2021). Reading Clausewitz, reimagining the practice of strategy. Strategic Organization, 19(2), 338-350.

