INFLUENCE OF INTELLECTUAL CAPITAL ON OPERATIONAL PERFORMANCE THROUGH INNOVATION CAPABILITY IN INDONESIA'S DEFENCE INDUSTRY

Pratiwi Dwi Citrasari
Department of Management, Faculty of Economics and Business, Brawijaya University, Indonesia
Email: pratiwidwicitra@gmail.com (corresponding author)

Kusuma Ratnawati
Department of Management, Faculty of Economics and Business, Brawijaya University, Indonesia
Email: kusuma@ub.ac.id

Djumilah Hadiwidjojo
Department of Management, Faculty of Economics and Business, Brawijaya University, Indonesia
Email: djumilah@ub.ac.id

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Abstract

This research examines the impact of intellectual capital on operational performance through innovation capabilities in the defence industry in Indonesia, PT. Pindad (Persero). Network processes within the company are assessed by internal performance, which is described by the company's operational performance. 142 employees who work in the production function were sampled in this research using the probability-sampling method with a stratified random sampling type. SEM-PLS was used as a data analysis model. Human capital, structural capital and social capital are three components used in the research. This study provides empirical evidence that these three components influence operational performance. In addition, it is known that human capital, structural capital, and social capital affect innovation capability, and the company's operational performance is influenced by innovation capability. In an indirect relationship, the results interpret that the influence of human capital, structural capital and social capital on the company's operational performance can be through innovation capability. This research provides input to the defence industry to improve performance by increasing the intellectual capital owned by the company without ignoring the importance of innovation capability.

Keywords: Operational Performance; Human Capital; Structural Capital; Social Capital; Innovation Capability.

JEL Classification: D24, O34, J24

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INTRODUCTION

The unfavourable global economic situation has been made worse by the global Covid-19 pandemic. The significant weakening of global economic activity occurred due to the lockdown policy or restrictions on population mobility to reduce the virus's spread, which affected the sudden discontinuance of normal company activities in various countries. As a result, the economic recession hit several regions, including Southeast Asia, espe-

cially Indonesia. The government (Ministry of State-Owned Enterprises) and SOEs are at the forefront of the nation's guard and make the best contribution to advancing the Indonesian economy to survive economic instability. Therefore, the performance of state-owned enterprises is the primer indicator for assessing of the company's management achievements.

Research focuses on the performance of state-owned enterprises in the national defence industry, particularly in the field of the main weapon system. The defence industry contributes to advancing the Indonesian economy and maintaining national defence. The increasing need for the main weapon system equipment also requires the defence industry to achieve good performance and continue innovating to meet the country's defence equipment needs. The existence of an advanced defence industry makes the national defence system stronger (Karim, 2014). However, the company's operational performance in the defence industry experienced a decline in operating performance for two consecutive years. Production realization declined by 14.24 per cent from the previous year, and production costs increased by 13.15 per cent from the prior year. This increase in expenses is not proportional to the increase in production output, so this is a problem related to the company's operational performance.

The processes and resources in the operation affect the company's operational performance. Therefore, the improvement of company processes and resources needs to be developed in the long term to improve the company's operational performance. In addition the resource is affected by the resource- based view (RBV) (Slack & Brandon-Jones, 2018). The principal objective of RBV is to efficiently align resources, such as products, processes, equipment, facilities, locations and other resources within the company so that the internal environment is a key factor for the company's strategic actions (Radjenović & Krstić, 2017). RBV aims to find sources of internal competitive advantage by developing resources that are core competencies of the company's specific capabilities, especially intangible resources (Wu & Sivalogathasan, 2013).

The company's core competencies develop from providing human knowledge supported by procedures, systems, processses, and relationships. This combination of intangible resources is known as intellecttual capital (Wu & Sivalogathasan, 2013), so intellectual capital needs to be the company's focus as an intangible resource to encourage the creation of competitive advantage in the company (Radjenović & Krstić, 2017). This intellectual capital can help synergize the available resources (Radjenović & Krstić, 2017) and generate value for the company, which can ultimately improve the company's operational performance (Alrowwad *et al*., 2020; Wang *et al*., 2018). Intellectual capital itself is based on existing knowledge within the company. This perspective allows intellectual capital to be conceptualized into three parts; human capital, structural capital and social capital. These three components represent knowledge in individuals, social relationships, and processes and systems within organizations (Zhang *et al*., 2017).

In addition, strengthening the innovation capability is considered the key to the company's success (Le & Lei, 2019). Companies with great innovation capabilities can respond quickly to changes by developing new knowledge so that the company will be able to gain a sustainable competitive advantage (Siahaan & Tan, 2020). Innovation capability is based on the ability to exploit the knowledge gained through finding new and better ways of doing things that can create value and increase the company's operational efficiency (Wu & Sivalogathasan, 2013).

Research conducted by Khalique & De Pablos (2015), Torre *et al.*, (2020) and Wang *et al.* (2018) shows that human capital affects operational performance, but this is contrary to research conducted by

Isa (2015) which shows that company performance is not related to human capital. Research conducted by Isa (2015), Khalique & De Pablos (2015) dan Wang *et al*. (2018) shows that structural capital affects the company's operational performance, but this is different from the results of research by Oppong *et al*. (2019) which states that structural capital does not affect on company performance. Research conducted by Agyapong *et al*. (2017), Hamad *et al*. (2019), and Isa (2015) show that social capital affects the company's operational performance. However, Khalique & De Pablos's (2015) research shows different results where social capital does not affect company performance.

The findings of Siahaan & Tan (2020) also confirm that innovation capability acts as an intermediary between intellectual capital and company performance. Excellent performance is determined by innovation capability, and intellectual capital of technology companies is influenced by innovation capability. Other research results reveal that human capital, structural capital, and social capital affect the company's innovation capability (Dhar et al., 2020; Fajri & Aziz, 2020; Gebremichael, 2020; Mendoza-Silva, 2021; Putra et al., 2020; WU & Sivalogathasan, 2013; Yeşil & Doğan, 2019). Then, innovation capabilities affect the company's operational performance (Dhar et al., 2020; Kafetzopoulos & Psomas, 2015; Sahoo, 2019; Saunila, 2014; WU & Sivalogathasan, 2013). The inconsistency of the previous study can be a research gap used to develop research on the influence of the intellectual capital component on the company's operations. In addition, no research synergistically integrates the three dimensions of intellectual capital, namely human capital, structural capital and social capital in an effort to understand their effect on the operational performance of companies, especially manufacturing companies, making this research more interesting to study.

Based on previous studies, it is suspected that there are variables mediating variables that have an important function in improving the company's operational performance, so this study examines the effect of the intellectual capital component. There are human capital, structural capital and social capital in the company's operational performance mediating innovation capability.

LITERATURE REVIEW

Operations management is needed to control production activities (De Toni, 2016). Resources and processes need to be appropriately managed to produce products and services (Wolniak, 2019). Every organization achieves organizational goals by organizing its resources into processes (Radjenović & Krstić, 2017). Managing resources and activities converting inputs into tangible outputs of products or services by organizational expectations is referred to as process. Operations and process management are assessed at the operational level to determine the operational performance of an organization (Slack & Brandon-Jones, 2018).

Operational Performance

Operational performance shows how efficiently a product or service is produced based on several materials that are transformed into finished products with good quality and can be delivered on time (Sharma & Modgil, 2019). In addition, operational performance is used to measure how well the process network in operation is for its customers, both internal and external customers. The goals are to reduce production and service costs and increase revenue by producing quality products and services, making a better design, and running operations smoothly, reducing the risk of failure. Then strengthen operating skills and knowledge within the company to build on existing capabilities to develop innovation (Slack & Brandon-Jones, 2018).

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Several indicators can measure operational performance; cost, quality and delivery (Gunday et al., 2011; Kafetzopoulos & Psomas, 2015). Production costs are costs incurred to produce a product. At the same time, quality is related to producing error-free goods or services besides the company's specifications, speed and accuracy in delivering goods according to the agreement between the producer and the customer (Slack & Brandon-Jones, 2018).

Intellectual Capital

Galbraith (1969) first introduced the intellectual capital concept. Galbraith (1969) suggests that intellectual capital is a "value creation process" (Gupta & Raman, 2020; Nazarpoori, 2017; Xu & Li, 2020). Intellectual Capital is a theory related to intangible assets, which reveals that intangible assets are the most important resource for companies that can lead the company to become a superior companies (Khalique & Shaari, 2013). Knowledge that exists within individuals and integration between systems is part of intellectual capital so that companies adopting intellectual capital in their business will be successful in achieving their performance. (Harris, 2014). Intellectual capital is all resources known to everyone in the company that can provide competitive advantage and create wealth (Khalique & Shaari, 2013; Stewart, 1998; Wang et al., 2018). This intellectual capital is based on human capital, social capital and structural capital (Armstrong, 2006; Seemann & Stucky, 2015; Zhang et al., 2017).

Human Capital

Human capital is the collective value of the organization's workforce's abilities, skills, and knowledge (Edvisson & Malone, 1997; Khalique & De Pablos, 2015; Mondy & Martocchio, 2016). Human capital is a component that exists in individuals that cannot be replaced by other components (Abualoush et al., 2018; Harris, 2014; Roos et al., 2005). Human capital indicators are grouped into three indicators; skills, knowledge and expertise (Dhar *et al*., 2020; Khalique & De Pablos, 2015; Shih *et al.*, 2010; Wang *et al*., 2018), attitude which is a psychological tendency expressed by a person (Khalique & De Pablos, 2015; Shih et al., 2010) and intellectual agility related to individual learning, perfecting the existing stock of knowledge and adaptability that can be used to produce solutions to the problems faced (Dabić *et al.*, 2021).

Structural Capital

Structural capital is represented as supporting human capital useful in delivering and storing intellectual material (Edvisson & Malone, 1997; Harris, 2014; Zhang et al., 2017). Structural capital aims to codify a useful set of transferable knowledge to preserve knowledge that may be lost and connect people with the data, experts, and expertise that comprise the body of knowledge (Stewart, 1998; Zhang et al., 2017). Two indicators measure the structural capital indicator; infrastructure and systems, policies and procedures (Khalique *et al*., 2018; Khalique & De Pablos, 2015; Wang *et al.*, 2018). Infrastructure is everything that supports the implementation of a process, while components or parts and materials to achieve an interconnected goal that aims to facilitate the flow of information is called a system. Policies and procedures are a series of concepts that serve as basic guidelines in implementing a job (Khalique & De Pablos, 2015).

Social Capital

Social capital is a resource both owned and potentially in the company, available and derived from relationships between individuals or social units (Ganguly et al., 2019). This social capital helps companies develop intellectual capital through their contribution to combining and exchanging knowledge between employees (Mazzucchelli et al., 2021; Nahapiet & Ghoshal, 1997). Social capital motivates

employees to be able to express knowledge and share experiences. At the same time, it also enables employees to decide and agree on the process or product development jointly, improves process efficiency and effectiveness and encourages employees to comply with company regulations (Zhang *et al*., 2017). Social capital is categorized into three indicators; structural social capital, relational social capital and cognitive social capital (Hamad *et al*., 2019; Khalique & De Pablos, 2015; Mazzucchelli *et al*., 2021; WU & Sivalogathasan, 2013). Social capital comes from the bonds between members, cooperation and the uniqueness of team members. Relational social capital comes from relationships that result from respect, trust and friendship. Cognitive social capital comes from the common vision, rules and norms within the company (Mazzucchelli et al., 2021).

Innovation Capability

Innovation capability is the ability that allows companies to develop the knowledge and thoughts generated by employees into new systems, processes or products that provide benefits to the company (Siahaan & Tan, 2020; Sivalogathasan & Wu, 2015). The development of innovation capabilities can continuously improve operating efficiency, especially in improving production processes. This improvement in the production process can enhance the quality of the product, where the new production process can minimize errors in the process, thereby minimizing operating costs (Saunila & Ukko, 2012). Innovation capability is classified into three indicators; product innovation capability, process innovation capability and organizational innovation capability. Product innovation capability is the company's ability to provide different or new products or service improvements in the market to obtain customer satisfaction. Process innovation capability is the company's competence to give a better manufacturing process or service than the current operation to achieve better performance This process innovation is believed to streamline operational costs or produce more production output for the company (Nazarpoori, 2017). At the same time, organizational innovation capability is the company's competence to reduce administrative costs that aim to improve company performance, reduce transactions, and increase employee satisfaction in the workplace (Kafetzopoulos & Psomas, 2015).

Hypothesis Development

The effect of human capital on operational performance

Human capital is a collection of knowledge possessed by individuals and individual abilities in a company that determines the company's success (Torre *et al*., 2020). Individuals who are experienced, skilled, and competent to make decisions correctly or effectively under time pressure are what the company needs to resolve problems properly (Wang *et al*., 2018). Therefore, companies with human capital above the average will have the expected performance (Torre *et al*., 2020). Based on this, the hypotheses proposed in the study are:

H1: Human capital positively and significantly affects operational performance.

The effect of structural capital on operational performance

Structural capital is the organization's infrastructure, such as databases, process manuals, procedures and enterprise systems that aim to generate value for the company. The existence of processes, procedures and manual systems is a way for companies to distribute and maintain the skills and knowledge that have been acquired from time to time so that the competitive advantage gained can last a long time (Torre *et al*., 2020). Furthermore, companies that invest in structural capital will be able to improve their procedures or work processes to improve product quality and solve problems more

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effectively and efficiently (Wang *et al*., 2018). Then the hypothesis proposed as the second hypothesis in this study is:
H2: Structural capital positively and significantly affects operational performance.

The effect of social capital on operational performance

Interactions between people in organizations are governed by relationships and attitudes, part of social capital (Sivalogathasan & Wu, 2015). In addition, social capital increase the ability of employees to transfer knowledge and ideas between employees (Agyapong et al., 2017). Therefore, social capital an important in improving the company's operational performance (Hamad et al., 2019; Khalique *et al*, 2015). Based on this, the hypotheses proposed in the study are:
H3: Social capital positively and significantly affects operational performance.

The effect of innovation capability on operational performance

Innovation capability is the ability of a company to modify knowledge and ideas into a new system continuously, process or product (Siahaan & Tan, 2020; Sivalogathasan & Wu, 2015). It is believed that product and process innovation can improve the company's operational performance by improving product quality, speeding up production processes, and increasing efficiency, while organizational innovation is used to increase cost efficiency (Kafetzopoulos & Psomas, 2015; Mendoza-Silva, 2021). Therefore, the higher the company's innovation capability, the higher the company's operational performance (Saunila et al., 2014). Based on this, the hypotheses proposed in this study are:
H4: Innovation capability positively and significantly affects operational performance.

The effect of human capital on operational performance mediated by innovation capability

The value of employees will automatically increase in terms of unique skills if the company invests in human resources. This causes increased innovation capabilities and innovation capabilities that play an important role in company performance. (Gebremichael, 2020). To develop innovation capabilities, companies must utilize knowledge resources that are sourced from human capital. The company's high innovation capability causes the company's operational performance to be higher (Saunila, 2014). Increased innovation capabilities can help companies reduce production costs, improve product quality, and on-time delivery (Kafetzopoulos & Psomas, 2015). Based on this, the hypotheses proposed in the study are:
H5: Human capital positively and significantly affects operational performance mediated by innovation capability.

The effect of structural capital on operational performance mediated by innovation capability

Superior company performance is determined by the company's innovation capability, while intellectual capital determines the company's innovation capability (Siahaan & Tan, 2020). Therefore, to develop innovation capabilities, companies need infrastructure that can be used to store various company information such as systems, databases, procedures, and process manuals. In addition, the company's ability to innovate in processes is often in the form of improvements in production processes, increased efficiency in production (Gopalakrishnan & Damanpour, 2001). As a result, it reduce production costs, and thus generate more benefits for the company (Paananen, 2009). So innovation capability is an important component for companies to improve their operational performance (Gunday et al., 2011; WU & Sivalogathasan, 2013). Based

on this, the hypotheses proposed in the study are:
H6: Structural capital positively and significantly affects operational performance mediated by innovation capability.

The effect of social capital on operational performance mediated by innovation capability

Social capital supports the implementtation of new ideas that have the potential to increase a company's innovation capability (Yeşil & Doğan, 2019). Social networks allow exchanging information that can improve innovation capabilities and ultimately lead to increased company performance. Companies that have innovation capabilities are believed to respond to changes in their environment quickly so that they can improve their performance (Ruiz-Jiménez & Fuentes-Fuentes, 2013). Based on this, the hypotheses proposed in the study are:
H7: Social capital positively and significantly affects operational performance mediated by innovation capability.

Research Conceptual Framework

This research examines the effect of human capital, structural capital and social capital on the company's operational performance. In addition, this study also uses innovation capability as a mediating variable. Figure 1 is an illustration of the conceptual framework for research.

RESEARCH METHODS

A quantitative approach with the type of explanatory research is used in this study. Explanatory research explains the relationship between one variable and another by testing hypotheses that have been formulated previously (Panday, 2015).

Participants and Data Collection

The population in this research were permanent employees of levels 3 and 4 who served as junior managers and group leaders in 53 production sub-departments at PT. Pindad (Persero) with a total population of 214 people. A probability sampling technique with a stratified random sampling type was used as a sampling technique. Collecting data using a questionnaire with a Likert scale consisting of five points. The questionnaires were distributed directly by visiting 142 respondents spread across the production area, both the production area of Pindad Bandung and Pindad Turen, Indonesia. The distribution of the questionnaires was carried out in the period from December 2021 to January 2022. The characteristics of the respondents in this study consisted of gender, age, years of service, and educational background. Table 1 represents the characteristics of the respondents.

Table 1 shows that 100% of the respondents are male, considering that the object of this research is a manufacturing company with production machines operated by male workers and operating for three shifts. Moreover, 76.1% of respondents are over 40 years old, and the working period is over 30 years. This data is in line with the object of this research where respondents are personnel who regulate the course of production and manage resources in the production function. Therefore they must have experience and understand production well. Educational background 78.87% high school because the company requires high school workers for the production function with the aim that these workers can be further developed based on organizational culture.

Measurement

Three indicators measure human capital; skills, knowledge and expertise with 4 question items adopted from Khalique & De Pablos (2015) and Wang *et al*. (2018), attitude with 4 question items adopted from Khalique & De Pablos (2015) and Shih et al. (2010) intellectual agility with 4 question items adopted from Dabić *et al*., (2021) dan Khalique & De Pablos (2015). Two indicators measure structural capital; infrastructure and system consisting of 4

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question items and policies and procedures consisting of 6 question items adopted from Khalique & De Pablos (2015). Three indicators measure social capital; structural social capital consisting of 4 question items adopted from Liu (2017) dan Mazzucchelli *et al*. (2021), relational social capital consisting of 4 question items and cognitive social capital consisting of 3 question items adopted from Mazzucchelli *et al*., (2021). Finally, innovation capability is measured by three indicators; product innovation consisting of 4 question items adopted from Kafetzopoulos & Psomas (2015), process innovation consisting of 4 question items and organizational innovation consisting of 4 question items adopted from Gunday *et al*. (2011) dan Kafetzopoulos & Psomas (2015). Operational performance is measured by cost, delivery and quality indicators, each indicator consisting of 2 questions adopted from Kafetzopoulos & Psomas (2015). Measurement using a five-item Likert scale. Table 2 shows the research construct and its measurement.

Data Analysis Technique

The research model was analyzed by structural equation modeling with the Partial Least Square approach. The software used in this study is SmartPLS 3.0. PLS is a variant-based structural capital equation analysis that can simultaneously test structural models (Avkiran & Ringle, 2018). PLS is used in this study because the information generated is efficient and easy to interpret, especially on complex models, can be used on small data sets, and can be used to analyze and develop theories because it can predict relationships between constructs (Avkiran & Ringle, 2018; Hair, 2014).

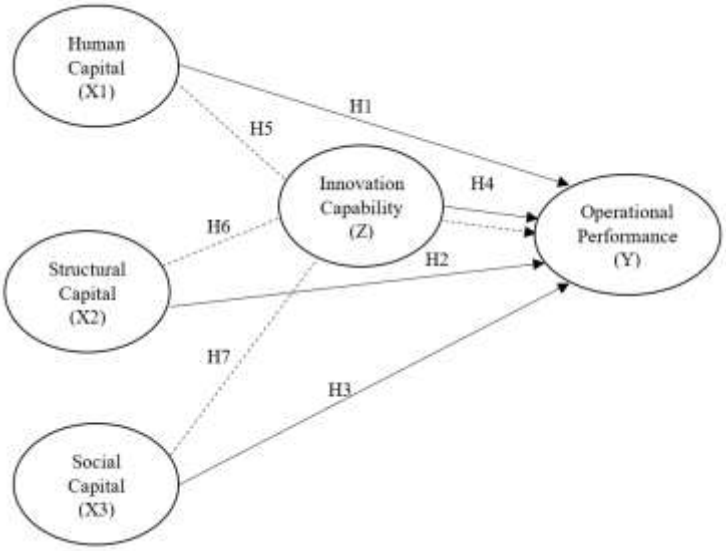

Figure 1. Conceptual Framework

Table 1. Respondent Characteristics

Characteristics	Category	Frequency	%
Gender	Male	142	100.0%
	Female	0	0.0%
Age	< 40 y.o.	34	23.9%
	≥ 40 y.o.	108	76.1%
Years of Service	< 30 y.	40	14.87%
	≥ 30 y.	102	71.83%
Educational Background	High School	112	78.87%
	Diploma	15	10.56%
	Bachelor	15	10.56%

Source: Data collected, 2022

Table 2. Research Construct and Measurement

Construct	Operationalization	Literature Adapted
Human Capital	Skills, knowledge and expertise Attitude Intellectual Agility	Dabić *et al.* (2021), Khalique & De Pablos, (2015), Shih *et al.* (2010) and Wang *et al*. 2018)
Structural Capital	Infrastructure and System Policies and Procedures	Khalique & De Pablos (2015)
Social Capital	Structural Social Capital Relational Social Capital Cognitive social capital	Liu (2017) and Mazzucchelli *et al*. (2021)
Innovation Capability	Product Innovation Process Innovation Organizational Innovation	Gunday *et al.* (2011) and Kafetzopoulos & Psomas (2015)
Operational Performance	Cost Delivery Quality	Kafetzopoulos & Psomas (2015)

RESULT AND DISCUSSION

Measurement Model

The validity and reliability of the model are assessed by outer model analysis (Hair, 2014). Discriminant and convergent validity are used as a tool to test validity, while composite reliability and Cronbach's alpha are used as tools to test reliability. Table 3 shows the results of processing validity and reliability.

Table 3 describes the value of outer loading (convergent validity) greater than 0.7 so that all items are declared valid. the variables of human capital, structural capital, social capital, innovation capability, and operational performance have an AVE value above 0.5. It means that all variables are eligible for discriminant validity. In addition, Table 3 also shows that the value of Cronbach's alpha for each variable is more than 0.6, so all research variables used are reliable. Composite reliability is more than 0.70, which means that these variables are in the high reliability category.

Structural Model

The structural model analysis is carried out to convince researchers that the model built is accurate (Hair, 2014). The PLS structural model in this study was evaluated by looking at the coefficient of determination (R^2), predictive relevance (Q^2), and Goodness of Fit (GoF). Figure 2 shows the results of structural model testing. The R^2 value is used to assess how much influence certain variables have on the dependent variable (Avkiran & Ringle, 2018). R^2 values are shown in Table 4.

Measurements related to how well the results of the observation value from the research model are measured using Q^2 (Hair, 2014).

$$Q^2 = 1 - (1 - 0.772) \times (1 - 0.746) \quad \ldots\ldots\ldots(1)$$
$$= 0.9421.$$

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The result of the Q^2 calculation in this study is 0.9421, so this research model can explain the information contained in the research data of 94.21%. While the GoF coefficient has a value range of 0 to 1 (Hair, 2014). The goodness of fit value is calculated as follows:

$$\text{Gof} = \sqrt{\overline{AVE} x \overline{R^2}} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

$$= \sqrt{0.6602x0.759} = 0{,}7079\ (70{,}79\ \%)$$

The goodness of fit value indicates that the model has a high ability to explain empirical data (> 0.36)(Hair, 2014).

Hypothesis Test

The direct effect hypothesis test is carried out by examining the coefficients and significance of each variable to determine whether each hypothesis proposed in the study can be accepted/supported or not.

An effect is declared significant if it has a p-value of less than 0.05 and t-statistic > 1.96, whereas if the p-value is above 0.05 and t-statistic < 1.96, then the effect is declared insignificant. Table 5 is the result of calculating the direct effect.

The indirect effect hypothesis testing in this study also uses the SmartPLS software. The effect of mediation is considered significant if the results of t-statistic > 1.96 and p-values <0.05 for each variable X on variable Y through variable Z. Table 5 shows that the human capital variable (X1) has a significant effect on the operational performance variable (Y), with a t-statistic value of 2.279 (>1.96) and a p-value of 0.023 (<0.05). The path coefficient of human capital's effect on operational performance is positive with a value of 0.227, therefore H1 is accepted. The structural capital variable (X2) has a significant effect on the operational performance variable (Y), with a t-statistic value of 2.565 (> 1.96) and p-values of 0.011 (<0.05), therefore H2 is accepted. The social capital variable (X3) has a significant effect on the operational performance variable (Y), with a t-statistic value of 2.604 (>1.96) and p-values of 0.009 (<0.05). The path coefficient of social capital's effect on operational performance is positive with a value of 0.259. Therefore, H3 is accepted. The innovation capability variable (Z) also has a significant effect on the operational performance variable (Y), with a t-statistic value of 2.734 (>1.96) and a p-value of 0.006 (<0.05), so H4 is also accepted. Table 6 is the result of the calculation of the mediation test.

Table 6 shows the indirect effect between the human capital variable (X1) on the operational performance variable (Y) through the innovation capability variable (Z), which has a path coefficient of 0.083, with a t-statistic value of 2.089 (> 1.96) and p-values of 0.037 (p<0.05), indicating partial mediation effect on operational performance. These results confirm H5, so H5 is accepted. The indirect effect between the structural capital variable (X2) on the operational performance variable (Y) through the innovation capability variable (Z) has a path coefficient of 0.090, with a t-statistic value of 2.145 (> 1.96) and p-values of 0.032 (<0, 05), indicating partial mediation effect on operational performance. These results confirm H6, so H6 is accepted. The indirect effect between the social capital variable (X3) on the operational performance variable (Y) through the innovation capability variable (Z) has a path coefficient of 0.089, with a t-statistic value of 2.076 (> 1.96) and p-values of 0.038 (<0, 05), indicating partial mediation effect on operational performance. These results confirm H7, so H7 is also accepted.

Table 3. Outer Model Analysis Results

Variables	Code	Item	Outer Loading	Cronbach's Alpha	Composite Reliability	Average Variance Age (AVE)
Human Capital				0.952	0.958	0.657
Skills, knowledge and expertise	X1.1.1	Employees in our company have special skills in work	0.864			
	X1.1.2	Employees in our company have good skills in their work	0.874			
	X1.1.3	Employees in our company are experienced employees in their fields	0.851			
	X1.1.4	Our company provides training programs according to employee needs	0.803			
Attitude	X1.2.1	Employees in our company have the initiative to take an active role at work	0.875			
	X1.2.2	Employees in our company are employees who have self-discipline and are responsible for the work they do	0.902			
	X1.2.3	Employees in our company have emotional stability	0.827			
	X1.2.4	Employees in our company are satisfied with top management	0.826			
Intellectual Agility	X1.3.1	Employees in our company can develop new ideas and knowledge according to the company's business development	0.909			
	X1.3.2	Our company supports employee activities to conduct research and development related to products and processes	0.800			
	X1.3.3	Employees in our company actively learn new things to improve their knowledge and skills	0.938			
	X1.3.4	Employees in our company try to analyze the problem by identifying the problem from various points of view	0.875			
Structural Capital				0.921	0.934	0.587
Infrastructure and System	X2.1.1	Our company provides adequate infrastructure for employees to access the information they need	0.803			
	X2.1.2	Our company provides an adequate and integrated application system according to the needs of employees to carry out their work	0.824			
	X2.1.3	Our company has a complete knowledge documentation system related to production in the form of databases, technical data, and process sheets	0.830			
	X2.1.4	Our company system supports innovation	0.862			
Policies and Procedures	X2.2.1	Our company's Human Resources function is fully dedicated to recruiting the best employees available	0.769			
	X2.2.2	Our company provides opportunities for employees to improve employee skills	0.828			
	X2.2.3	Our company provides opportunities for employees to improve employee education levels	0.748			
	X2.2.4	Employees in our company are involved in making organizational decisions	0.790			
	X2.2.5	Policies, procedures and databases in our company are always updated	0.862			
	X2.2.6	A lot of knowledge and information will not be lost if important employees in the organization leave the company	0.822			

Source: Data processed, 2022

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Table 3. *Continue …*

Variable	Code	Item	Outer Loading	Cronbach's Alpha	Composite Reliability	Average Variance Age (AVE)
Social Capital				0.949	0.956	0.664
Structural Social Capital	X3.1.1	Employees in our company are skilled in collaborating to identify, analyze and solve problems.	0.874			
	X3.1.2	Employees in our company share information and learn with each other that can be useful in getting work done and producing better jobs	0.877			
	X3.1.3	Employees in our company interact and exchange ideas on issues that arise with people in various areas of the company	0.885			
	X3.1.4	Employees in our company have good relations with each other so that togetherness is established in the team	0.858			
Relational Social Capital	X3.2.1	Employees in our company will help each other when needed	0.868			
	X3.2.2	Employees in our company will help each other if there are employees who have difficulty completing their work	0.895			
	X3.2.3	Employees in our company are employees who behave consistently in following the company's standard rules and norms	0.876			
	X3.2.4	Employees in our company are employees who keep promises that have been agreed upon	0.856			
Cognitive social capital	X3.3.1	Employees in our company have the same passion for solving the problems they are facing	0.886			
	X3.3.2	Employees in our company see the company's performance as something important that must be fulfilled	0.881			
	X3.3.2	Employees in our company have the same willingness to complete work and achieve work targets by carrying out work properly and correctly	0.914			
Innovation Capability				0.954	0.960	0.665
Product Innovation	Z1.1	Our company can introduce new products to the market	0.861			
	Z1.2	Our company can bring new knowledge and technology to develop new products	0.862			
	Z1.3	Our company can develop products using different components and materials	0.851			
	Z1.4	Our company can improve product quality	0.880			
Process Innovation	Z2.1	Our company can improve the utilization of existing machines and equipment	0.877			
	Z2.2	Our company can to adapt machines and develop its process solutions	0.854			
	Z2.3	Our company can increase the speed of product delivery in the production process	0.869			
	Z2.4	Our company can improve existing work methods, get rid of inefficient processes, and improve processes that are still usable	0.857			
Organizational Innovation	Z3.1	Our company can build relationships and integrate related functions in terms of product development and process development	0.896			
	Z3.2	Our company can update management information systems and information sharing practices within the company	0.887			
	Z3.3	Our company can update work instructions and procedures to support the implementation of operational activities in the workplace	0.891			
	Z3.4	Our company can update the organizational structure, which is useful to facilitate coordination between functions	0.790			

Source: Data processed, 2022

Table 3. *Continue …*

Variables	Code	Item	Outer Loading	Cronbach's Alpha	Composite Reliability	Average Variance Age (AVE)
Operational Performance				0.925	0.941	0.728
Cost	Y1.1	Production efficiency is the target that has been achieved	0.954			
	Y1.2	Production costs has been fit to the plan	0.955			
Delivery	Y2.1	Completion of production results in accordance with the predetermined time target	0.933			
	Y2.2	Delivery of products is done on time	0.924			
Quality	Y3.1	Product durability has met the standard	0.920			
	Y3.2	The product complies the defined specifications	0.932			

Source: Data processed, 2022

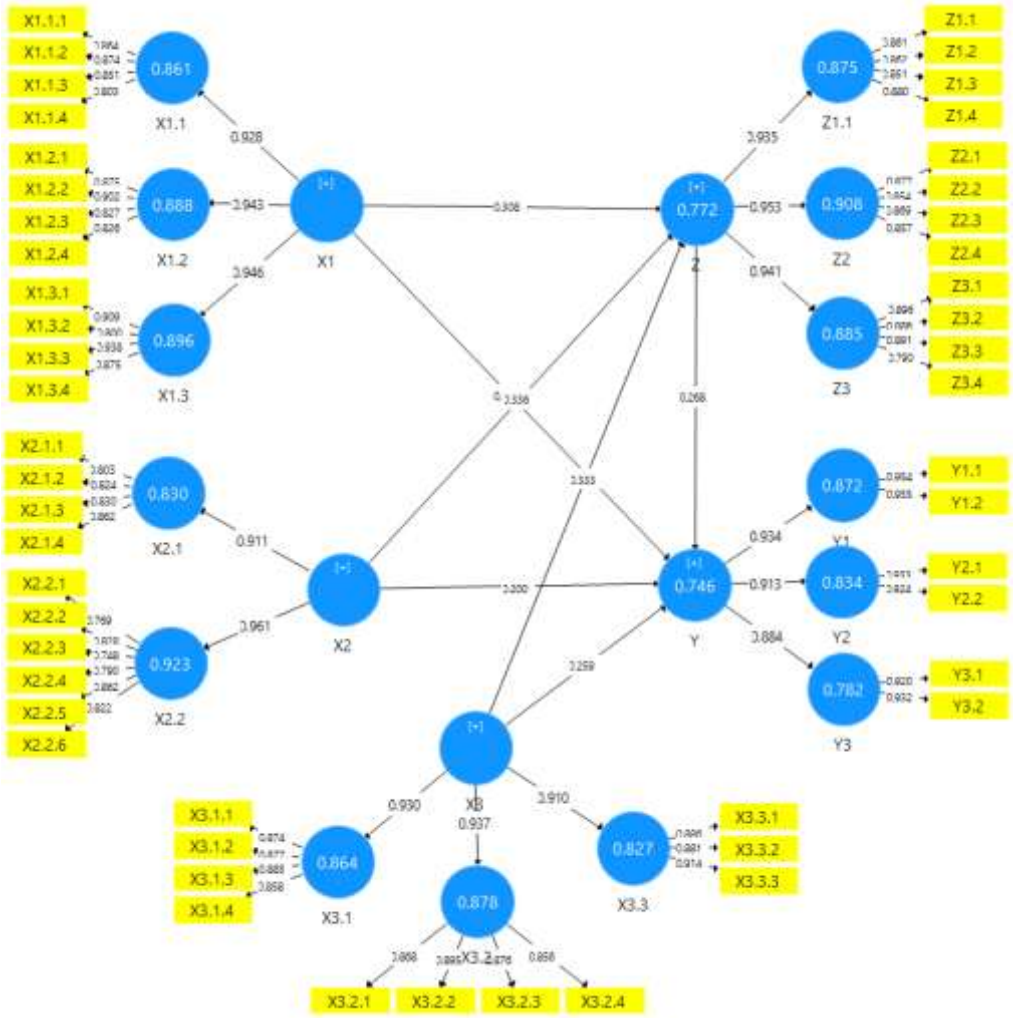

Figure 2. Structural Research Model
Source: Data processed, 2022

Table 4. Coefficient Determination Test Results

Variable	R Square
Z (Innovation Capability)	0.772
Y (Operational Performance)	0.746

Source: Data processed, 2022

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Table 5. Direct Hypothesis Testing Results

Hypothesis	Correlation	Path Coefficient	T-statistic	p-value	Conclusion
H1	X1 (*Human Capital*) → Y (*Operational Performance)*	0.227	2.279	0.023	Accepted
H2	X2 (*Structural Capital*) → Y (*Operational Performance)*	0.200	2.565	0.011	Accepted
H3	X3 (Social *Capital*) → Y (*Operational Performance)*	0.259	2.604	0.009	Accepted
H4	Z (*Innovation Capability*) → Y (*Operational Performance)*	0.268	2.734	0.006	Accepted

Source: Data processed, 2022

Table 6. Indirect Hypothesis Testing Results

Hypothesis	Correlation	Path Coefficient	T-statistic	p-value	Conclusion
H5	X1 (*Human Capital*) → Z (*Innovation Capability)* → Y (Operational Performance)	0.083	2.089	0.037	Accepted
H6	X2 (*Structural Capital*) → Z *(Innovation Capability)* → Y (Operational Performance)	0.090	2.145	0.032	Accepted
H7	X3 (Social *Capital*) → Z *(Innovation Capability)* → Y (Operational Performance)	0.089	2.076	0.038	Accepted

Source: Data processed, 2022

Discussion

This study examines the influence of intellectual capital on the company's operational performance through innovation capabilities. Innovation capability was chosen as a mediating variable to overcome the gap related to intellectual capital on inconsistent operational performance. The first hypothesis results of this study indicate that human capital has a significant effect on the operational performance of the defence industry company in Indonesia. These results are significant because all human capital indicators from each individual in the company are important indicators in improving the company's operational performance. A decrease in human capital will also reduce the company's operational performance. Companies always need employees who have the expertise, skills, and experience and can solve problems well (Wang et al., 2018). Companies that invest in human resources will make the company have the expected performance (Torre et al., 2020). These results support empirical Khalique & De Pablos (2015), Torre *et al*. (2020) and Wang *et al*. (2018), studies that state that human capital has a positive and significant effect on the company's operational performance. It also provides evidence that human resources in the company are important resources, so employees should be a component that takes an important role in various processes carried out in the company's day-to-day (Torre et al., 2020).

Second, the second hypothesis result of this study indicates that the structural capital variable affects the operational performance of the defence industry company in Indonesia. The effect of structural capital is significant on operational performance because infrastructure, systems, policies and procedures are important in improving the company's

operational performance. The better the company's infrastructure, systems, policies and procedures, the company's operational performance will increase. These results support the empirical studies conducted by Isa, 2015, Khalique & De Pablos, 2015 and Wang et al., 2018, which also state that structural capital has a positive and significant effect on the company's operational performance. The existence of manual processes, procedures and systems is a way for companies to transfer and maintain skills and knowledge obtained from time to time so that the competitive advantage gained can last a long time. In addition, the company's systems and procedures can also direct employees towards company goals which can positively affect the company's operational performance. (Torre et al., 2020).

Third, the third hypothesis result of this study indicates that the social capital variable affects the operational performance of the defence industry company in Indonesia. The significant influence of social capital on operational performance is due to collaboration, interaction and relationships between employees, mutual trust between employees, and the similarity of goals between employees within the company who have a role in improving the company's operational performance. These results support the study conducted by Agyapong *et al.* (2017), Hamad *et al*. (2019) and Isa (2015), who also states that social capital affects the company's operational performance. The coefficient value owned by the social capital variable is also the largest compared to other variables. This indicates that social capital is the capital that most affects the operational performance of defence industry companies in Indonesia.

Fourth, the study results that innovation capability has a positive and significant effect on the operational performance of companies in the defence sector in Indonesia. The effect of innovation capability on operational performance is because companies that have capabilities in product innovation, process innovation and organizational innovation are able to help companies improve their operational performance in terms of lowering costs, improving product quality and meeting predetermined delivery targets. This supports the research conducted by Kafetzopoulos & Psomas (2015), Liu et al. (2020), Sahoo (2019), and Saunila (2014) which also prove empirically that innovation capability is able to improve company performance.

Fifth, this study indicates that the innovation capability variable positively and significantly mediates the impact of the human capital variable on the operational performance of the defence industry company in Indonesia. The mediating effect of innovation capability can occur because human capital is an important capital to increase innovation capability that helps companies to produce useful solutions to improve performance better in the long term (Gebremichael, 2020; Liu *et al.,* 2020; WU & Sivalogathasan, 2013). In addition, several journals state that the higher the innovation capability of a company, the higher the company's operational performance (Kafetzopoulos & Psomas, 2015; Saunila *et al.,* 2014). Therefore, human capital can be used to improve innovation capabilities and this innovation capability helps improve company performance (Wu & Sivalogathasan, 2013). The results of this study are also in accordance with the research of Dhar *et al.* (2020) and Liu *et al.* (2020), which states that human capital affects organizational performance through innovation capabilities.

Sixth, this research indicates that innovation capability positively and significantly mediates the effect of structural capital on the operational performance of defence industry companies in Indonesia. The mediating effect of innovation capability can occur because structural capital is able to provide and transfer knowledge through infrastructure, systems, databases and procedures that can be used

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to improve the company's innovation capability (Fajri & Aziz, 2020; WU & Sivalogathasan, 2013), companies with great innovation capabilities will be able to continue to develop their knowledge so these companies will be able to obtain sustainable benefits (Siahaan & Tan, 2020), such as creating efficiency and reducing production costs which have an impact on the better operational performance of the company (Gopalakrishnan & Damanpour, 2001; Paananen, 2009).

Seventh, the seventh hypothesis results of this study show that innovation capability positively and significantly mediates the effect of social capital on operational performance in defence industry companies in Indonesia. The mediating effect of innovation capability can occur because employee reciprocity is fundamental to ensuring that knowledge can be shared through quality information exchange. This quality information enhances the company's innovation capability (Mendoza-Silva, 2021; Putra et al., 2020). Several other studies also discuss that innovation capability is able to improve the company's operational performance (Mendoza-Silva, 2021; Putra et al., 2020; Yeşil & Doğan, 2019). This study produced results that did not contradict the research of WU & Sivalogathasan (2013) that social capital can affect the ability to innovate. Therefore, with increased innovation capabilities, the company's operational performance is also getting better.

CONCLUSION AND RECOMMENDATION

This study builds a conceptual framework related to the influence of intellectual capital, which is represented in three dimensions, namely human capital, structural capital and social capital on operational performance through the company's innovation capabilities. This study concludes that human capital influences operational performance, so increasing human capital owned by the company can increase the company's operational performance. Structural capital can affect operational performance. Therefore, increasing the company's structural capital will improve the company's operational performance. Social capital also affects operational performance positively and significantly, so the better the social capital owned by the company, the company's operational performance will also increase. Innovation capability also affects the company's operational performance, so when the company has good innovation capabilities, the company's operational performance will also be good. In addition, the results of this study also show that human capital, structural capital and social capital have a positive and significant effect on operational performance through innovation capability.

This research supports operational management theory, which states that all processes require adequate and well-maintained resources to produce the expected outputs. (De Toni, 2016; Slack & Brandon-Jones, 2018). In addition, this study provides empirical evidence showing that intellectual capital is an important capital that companies must manage, so this research supports the theory of Resource Based View (RBV). This theory is the theoretical basis for intellectual capital that companies can use to improve performance. The RBV concept states that to achieve good performance, companies must have adequate resources (Slack & Brandon-Jones, 2018).

Acceptance of the hypothesis reveals practical managerial implications, particularly for Indonesia's defence industry companies. First, companies need to improve their human resources by improving their performance reward system based on the calculation of each employee's key performance indicators so that the performance rewards obtained are in accordance with the performance of each employee, which can later motivate employees to improve their performance, which in turn helps the company in improving operational performance. Second, companies

need to increase structural capital by completing and updating production procedures in accordance with current conditions which must be socialized regularly with the aim of minimizing production errors which will ultimately help companies improve their operational performance. Third, companies need to increase social capital by increasing mutual trust between employees to facilitate the flow of information and knowledge between employees, such as holding regular monthly production meetings that emphasize cooperation and interaction. Fourth, in terms of innovation capabilities, companies need to improve existing work methods, get rid of inefficient processes and improve processes that can still be used to streamline processes to reduce production costs which can then help companies improve their operational performance.

This research is only limited to the use of three components of intellectual capital: human capital, structural capital, and social capital, according to the conditions of the object under study. Future research can use customer capital and innovation capital as other dimensions of intellectual capital to develop research on intellectual capital and company performance. This research is also limited to the production function in PT. Pindad (Persero). The study results may differ if applied to a more general manufacturing or service company. Further researchers can conduct research by involving employees from companies engaged in other manufacturing or services.

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