

# The Impact of Intellectual Capital Toward Firm's Profitability of Telecommunication Infrastructure Listed in Indonesian Stock Exchange (IDX) from 2018-2021

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Keywords: Profitability, Structural Capital Value Added (STVA), Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), Value-Added Intellectual Coefficient (VAIC).

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#### ABSTRAK

Penelitian ini bertujuan mengetahui pengaruh dariintelektual capital terhadap profitabilitas. Metode penelitian yang digunakan adalah metode kuantitatif dengan menggunakan teknik porpose sampling sebanyak 18 perusahaan dan penelitian yang terpilih selama 4 tahun penelitian sehingga terdapat sebanyak 72 data. Teknik pengumpulan datanya menggunakan data sekunder vang diambil dari perusahaan infrastruktur telekomunikasi yang terdaftar di bursa efek Indonesia (BEI) Tahun 2018-2021. Teknik analisis data diawali dengan Statistik Deskriptif, Normal probability P-P plot, Uji Multikolinearitas, Uji Koefisien Determinasi, Uji T dan Uji F, data dianalisa menggunakan SPSS versi 25.0, Hasil penelitian menunjukkan bahwa Value Added Capital Employed , Value Added Human Capital dan Value-Added Intellectual Coefficient tidak berpengaruh terhadap profitabilitas secara parsial, sedangkan Structural Capital Value Added berpengaruh positif terhadap profitabilitas secara parsial dan intelektual capital tidak berpengaruh simultan terhadap profitabilitas. Dengan demikian, dapat disimpulkan bahwa perusahaan Infrastruktur Telekomunikasi harus fokus pada modal strukturalnya untuk memiliki keunggulan kompetitif.

#### ABSTRACT

This study aims to determine the effect of intellectual capital on profitability. The research method used is a quantitative method using a porpose sampling technique as many as 18 companies and research selected for 4 years of research so that there are as many as 72 data. The data collection technique uses secondary data taken from telecommunications infrastructure companies listed on the Indonesia Stock Exchange (IDX) for 2018-2021. The data analysis technique begins with descriptive statistics, normal probability P-P plot, multicollinearity test, determination coefficient test, T test and F test. The data is analyzed using SPSS version 25.0. The results show that Value Added Capital Employed, Value Added Human Capital and Value-Added Intellectual Coefficient have no partial effect on profitability, while Structural Capital Value Added has a positive impact on profitability and intellectual capital has no simultaneous effect on profitability. Thus, it can be concluded that Telecommunication Infrastructure company should focus on its structural capital to have a competitive advantage.

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# **1. INTRODUCTION**

At this day of age, the economy is developing at an expeditious rate which bring about real changes to the business management and competitive strategy determination. As the economy grows, people are more aware that in order to compete with others, company does not only need to own the resources it has, however it lies in how to optimize those resources through innovation and knowledge of human resources towards the company. In general, companies are an organization formed with a purpose. The main purpose of a company is to contribute to society through products and/or services and in return, obtain profit. The achievement of profit will be determined on how the company performed and it will be used as the basis for decision making for internal and external parties

Achieving targeted profit is a challenge for every company. A company's profit is given back towards its members which means it will also improve the welfare for each one of its members. The word profitability is referred from the ability of a company in achieving profit through its assets (Sartono, 2015, as cited in Nurkharimah et al., 2020). Profit indicates how a company fulfils its obligations to the creditors and investors which will affect the party's decision. Efficiency must be carried out by every company in order to maintain business continuity or to be able to come on top in this competitive world. Having lots of resources does not mean that it can be managed efficiently, which will cause the performance to be suboptimal.

The company's profitability has become the main criterion in determining the company's financial performance. In the business world, profitability plays an important role in the structure and development of the company because it can measure the performance and success of the company. Measurement of company performance can be seen from the company's financial statements using an analytical tool, namely Widiatmoko's financial ratios (Widiatmoko, 2015). One of the ratios used as a measurement of financial performance is the profitability ratio, where Return on Assets (ROA) is one of the measurement indicators. According to (Syamsudin, 2007 as cited in Astuti et al., 2019), "profitability is the company's ability to earn profits in relation to sales volume, total assets and certain investments from company owners."

There are no regulations in Indonesia that regulates how Intellectual capital should be recognized, measured, or disclosed. The phenomenon of intellectual capital began to emerge following the publication of PSAK No. 19 (Revised 2010) regarding intangible assets, which took effect on January 1, 2011 and replaced PSAK N0. 19 Intangible Assets (revised 2000). This standard governs the accounting treatment of intangible assets that are not covered by other PSAKs. This statement governs procedures for identifying, measuring, and disclosing assets in any form. Although it is not explicitly stated as Intellectual Capital, it has received some attention. In other words, PSAK No.19 (Revised 2010) states that intangible assets are nonmonetary assets with no physical form that are held for use in producing or delivering goods or services, renting them out to other parties, or for administrative purposes (Ikatan Akuntan Indonesia, 2012). Increased recognition of Intellectual Capital in a company's competitive advantage, precise measurement of the company's Intellectual capital has yet to be determined. Pulic (1997) as cited in Astuti et al., (2019) does not directly measure Intellectual Capital of a company, but proposes a measure to assess the efficiency of the value added as a result of the company's intellectual capabilities (Value Added Intellectual Coefficient - VAIC). The main components of VAIC can be seen from company's resources, namely physical capital (VACA – Value Added Capital Employed), Human Capital (VAHU - Value Added Human Capital), and structural capital (STVA – Structural Capital Value Added). Pulic's method has an advantage that is easy to obtain reliable data used in research. The data needed to calculate these ratios are standard financial figures contained in a company's financial report.

# 2. METHODOLOGY

Researchers use secondary data which forms the basis of written research data information. The type of research used by the authors is quantitative type research, Sugiyono in Widiatmoko, (2019), quantitative research is research that looks at the relationship between independent variables and the dependent variable and is more causal in nature. With the intention of finding the magnitude of the influence of the independent variables towards the dependent variable.

Intellectual capital indicators (X1) are Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), Structural Capital Value Added (STVA) and Value-Added Intellectual Coefficient (VAIC). The profitability indicator (Y) is the return on assets (ROA). The object of the study comes from the financial statements of Telecommunication Infrastructure companies listed on the Indonesia Stock Exchange (IDX) for 2018-2021, as many as 18 companies and research were selected during 4 years of research, the results were 72 data.

# **Intellectual Capital**

Intellectual capital is seen as knowledge used in creating wealth in the company. Intellectual capital is part of an intangible asset very valuable where the information is also needed by external parties (Nurkharimah et al., 2020). Intellectual capital is also an important asset for company in the form of intangible assets.

According to Rasidy et al., (2020) Intellectual Capital are intangible assets that are not observable, but can be measured because of its intangible nature that it cannot be captured by the human senses. Edvinson and Malone in (Manalu & Hutabarat, 2020), Stated that intellectual capital is experience applied to technology, organizational culture, customer information, and expertise that can give a company a competitive advantage.

Rachmawati in (Manalu & Hutabarat, 2020) stated that for calculating Intellectual Capital VAIC Method should be used, namely by calculating the sum of the value created by adding VACA, VAHU, and STVA as the final result often called VAIC. Thus, VAIC is computed in three stages:

# VACA

VACA is measured by dividing Value Added (VA) with Capital Employed. This ratio shows involvement that each worker's capital does to add value in an organization or company.Firer and William in Silaban, (2022) explained that "Employed Capital or physical capital is an indicator of added value that is created on the capital cultivated in the company efficiently". How a company manages physical and financial capital efficiently can be assessed based on the company's Capital Employed. The greater a company's Capital Employed value, the more efficient its management of intellectual capital in the form of buildings, land, equipment, or technology. The formula for VACA is as follows:

$$VACA = \frac{Value \ Added}{Capital \ Employed} \dots \dots (1)$$

# VAHU

VAHU is dividing Value Added with Human Capital to show the involvement in value added through every amount of money invested in Human Capital in a company, or the influence between capital increase (Value Added) and Human Capital to show the effect of Human Capital in adding value in a company. Silaban, (2022) explained that Human capital is made up of knowledge, skills, innovation, and the ability of a company to carry out its duties in creating value in order to achieve goals. The creation of added value by human capital in the

performance of their duties and responsibilities will provide an organization with long-term revenue. The formula for VAHU is as follows:

$$VAHU = \frac{Value Added}{Human Capital} \qquad (2)$$

### STVA

STVA is the ratio of Structural Capital to value added which represents the amount of Structural Capital required in order to establish the addition of Value Added in every money spent. STVA is an indicator to measure the ability of Structural Capital to create value for the company. The ability of an organization or company to fulfill the company's routine practices and design that support employee efforts to build optimal intellectual performance as well as business and overall performance is referred to as structural capital. Structural Capital includes the company's system of operations, process of manufacturing, organizational culture, philosophy of managements and all forms of intellectual property owned by the organization. An individual can have a high level of intellectuality, but if the organization has poor structure and procedures, intellectual capital will not perform optimally and the potential that exists will not be utilized optimally (Silaban, 2022). STVA can be measured with the following formula:

$$STVA = \frac{Structural Capital}{Value Added} \qquad (3)$$

#### VAIC

Once these formulas have been solved, then we are able to find the VAIC which is an indicator in finding Intellectual Capital for a company. Value added is the added value of the company, such as the creation of value from the activities of the company and its employees, which can be measured by differentiating between the market value of the goods played by the company and the cost of goods and materials purchased from other companies. Value added is the most objective indicator for assessing the success of a business and shows the company's ability to create value (Silaban, 2022). VAIC can be measured by adding all of the three components as follows:

$$VAIC = VACA + VAHU + STVA \dots (4)$$

#### Profitability

Profitability is the ability of a company to generate profits from the company's business activities through various management decisions and policies. The company will have difficulty attracting capital from outside if it is not in a profitable condition. "Company owners, creditors and management realize important benefits for the future of the company so they will try to increase company's profits" (Silaban, 2022). But according to Syamsudin in Astuti et al., (2019), "profitability is a company's ability to earn profits in relation to sales volume, total assets and certain investments from company owners."

#### **Return on Assets (ROA)**

Return On Assets is a ratio that shows how much the contribution of assets is in creating net profit (Hery, 2017). According to Kasmir, (2018) Return on Assets is a ratio that shows the return on the total assets used in the company. It can be concluded that Return On Assets (ROA) is a ratio that shows how much a company can generate net profit from the total assets owned. Total assets and net income affect return on assets (ROA). The total assets which refers to all assets, both tangible and intangible (Intellectual Capital). The use of all assets owned by the

company including intellectual capital can create added value for the company which can affect the company's performance (profitability). The higher the return on assets (ROA) value, the more efficient the utilization of all company assets in achieving profits. While net profit is the result of deducting revenue from expenses and also deducting interest and taxes. Return on assets (ROA) is one of the profitability ratios, and the return on assets ratio (ROA) is the rate of return on profits from assets owned by the company, so ROA is measured according to Brigham in Astuti et al., (2019) are as follows:

# **Capital Employed**

Capital employed (CE) depicts a company's ability to manage resources in the form of capital assets, which, if properly managed, will improve the company's financial performance. On the other hand, according to Harahap & Nurjannah, (2020), utilization of CE efficiency used can increase ROA, because the value of assets that contribute to the company's ability to generate income is referred to as capital employed. The better the company manages intellectual capital's three components, the better the company manages assets. If the company is able to properly manage assets and reduce operational costs, it will be able to increase the added value of the company's intellectual ability.

### Value Added

A commodity whose value rises as a result of processing, transportation, or storage in a manufacturing process. Despite Indonesia's enormous potential, these products are currently receiving little attention in terms of developing added value. In essence, value added is the added value of a commodity due to processing, transportation or storage in a production (Milyana, 2016).

### **Research Hypothesis**

Nurkharimah et al., (2020) proved that STVA has a significant impact towards profitability. Salsabila & Rejeki, (2021) proved that VACA, VAHU, VAIC has a positif impact towards profitability (ROA) but, STVA has a negative inpact towards profitability (ROA). In research that has been conducted by Silaban, (2022), Harahap & Nurjannah, (2020), Astuti et al., (2019) and Yuniarsih, (2017) revealed that Intellectual Capital affects profitability.

Based hypothesis on recent research results:

- H1 : Value Added Capital Employed (VACA) will a positive impact on Profitability (ROA).
- H2 : Value Added Human Capital (VAHU) will have a positive impact on Profitability (ROA).
- H3 : Structural Capital Value Added (STVA) will have a negative impact on Profitability (ROA).
- H4 : Value-Added Intellectual Coefficient (VAIC) will have a positive impact on Profitability (ROA).
- H5 : VACA, VAHU, STVA AND VAIC Simultaneously will have a positive impact on Profitability (ROA).

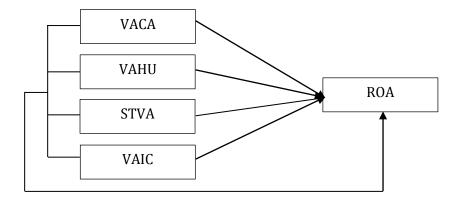


Figure 1. Research the framework

Explaination:

X1 = Independent Variable 1, which is Value Added Capital Employed (VACA)

X2 = Independent Variable 2, which is Value Added Human Capital (VAHU)

X3 = Independent Variable 3, which is Structural Capital Value Added (STVA)

X4 = Independent Variable 4, which is Value-Added Intellectual Coefficient (VAIC)

 $\rightarrow$  = Impactful partially between the independent variables and the dependent variable

 $\rightarrow$  = Impactful simultaneously between independent variables and dependent variable

### 3. RESULTS AND DISCUSSION

### **3.1 Results**

	N	Min.	Max.	Mean	Std. Deviation
VACA	72	-27,67	0,93	-0,27	3,31
VAHU	72	-23,5	35,2	2,12	6,94
STVA	72	-2,53	3,54	0,61	0,84
VAIC	72	-42,0	36,5	2,46	8,71
ROA	72	-33,11	0,60	-0,51	3,94
Valid N (listwise)	72				
Source: processed data					

# Table 1. Descriptive Statistic

Regarding of audit quality as measured by applying the value:

- 1. Profitability Value (ROA) has a minimum value of -33.11 and a maximum value of 0.60 with an average of -0.51 indicating a net profit of around -0.51%, which means that there was a decrease in profit during the year of study.
- 2. The Value-Added Capital Employed (VACA) variable has a minimum value of -27.67 and a maximum of 0.93 with an average of -0.27.
- 3. The Value-Added Human Capital (VAHU) variable has a minimum value of -23.5 and a maximum of 35.2 with an average of 2.12. shows the contribution made by every rupiah invested by 212%.

- 4. The Structural Capital Value Added (STVA) variable has a minimum value of -2.53 and a maximum value of 3.54 with an average of 0.61.
- 5. Variable Value-Added Intellectual Coefficient (VAIC) has a minimum value of -42,0 and a maximum value of 0,60 with an average of -0,51. shows that the performance of the company's intellectual capital is approximately -51%.

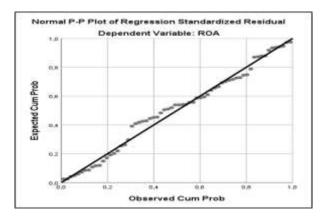


Figure 2. Normal Probability P-P plot Test

From the picture above, we can see that the spread to the points spreads around the axis of the diagonal line. It can be concluded that if the spread is not too far past the diagonal line, it means that the graph has a normal distribution pattern and that the regression model meets normality.

Model	Collinearity	Collinearity Statistics			
	Tolerance	VIF			
VACA	0,567	1,764			
VAHU	0,854	1,171			
STVA	0,659	1,518			
VAIC	0,558	1,794			
a. Dependent Variable: ROA					

**Table 2. Multicollinearity Test** 

If the tolerance value is > 0.1 and the VIF < 10, the multicollinearity test results indicate that; Value Added Capital Employed (VACA) tolerance value = 0.567 > 0.1 then the VIF value is 1.764 <10. Value Added Human Capital (VAHU) tolerance value = 0.854 > 0.1 then the VIF value is 1.171 <10. Structural Capital Value Added (STVA) tolereance value = 0,659 > 0,1 then the VIF value is 1,518 < 10. Value-Added Intellectual Coefficient tolerance value (VAIC) = 0,558 > 0,1 then the VIF value is 1,794 < 10. So, it was concluded that the data used in this study did not have problems in the multicollinearity test.

		t Test			Гest	R Square
	В	t	Sig.	F	Sig.	
(Constant)	0,095	0,161	0,872	1,709	,173 <sup>b</sup>	0,070
VACA	-0,115	-0,610	0,544			
VAHU	0,042	0,615	0,541			
STVA	-1,242	-2,228	0,029			
VAIC	0,049	0,687	0,494			
a. Dependent Va	riable: ROA	1				

# Table 3. Regresion Test Result

Based on the output results in the table above, the value of the adjusted R square is 0.029 (2.9%). This result means that the independent variable in this study affects the dependent variable by 2.9%. While the remaining 97.1% (1 - 0.029) is due to other factors in the study.

From the data table above, we can conclude that the value of T found is 0.161, and the value of the T table with A=5% and df=(n-k) = (72-2) = 70, the T table is 1.667. thus, T count < T table (0.161 < 1.667), therefore we can see from the T count table above if;

- 1. The Value-Added Capital Employed (VACA) has a significance value of 0.544 > 0.05, which means that X1 does not impact Profitability (ROA)
- 2. The Value-Added Human Capital (VAHU) has a significance value of 0.541 > 0.05, which means that X2 does not impact Profitability (ROA).
- 3. The Structual Capital Value Added (STVA) has a significance value of 0.029 < 0.05, which means that X3 has a positive impact on Profitability (ROA).
- 4. Value-Added Intellectual Coefficient (VAIC) has a significance value of 0.494>0.05, which means that X4 do not impact Poriftability (ROA)

In the data table above, we can conclude that the value of F found is 1.709, and the value of the F table with, A=5% and df=(k-1) = (2-1) = 1 and df2=(n-k) = (72-1) = 71, the F table is 3.98. thus, F count > F table (1.709 > 3.98), then it can be seen from the probability value of the data that is equal to 0.173 > 0.05 explaining that Value Added Capital Employed (VACA), Value Added Human Capital (VAHU), Structural Capital Value Added (STVA), and Value-Added Intellectual Coefficient (VAIC) simultaneously have no effect on Profitability (ROA) in Telecommunication Infrastructure companies Listed on the IDX for the 2018-2021 period.

# 3.2 Discussion

# Impact of Value-Added Capital Employed Towards Profitability

Based on the result of the T-Test  $H_1$  have a significance value is 0.541 and coefficient regression with a value of -0.155 which means that Value-Added Capital Employed does not impact towards profitability (ROA) and it can be concluded that  $H_1$  is denied. Nurkharimah et al., (2020) proved that partially, Value Added Capital do not have an impact towards profitability. The result of this study indicate that the company has not been able to manage and take advantage of its physical capital efficiently and effectively.

# Impact of Value-Added Human Capital Toward Profitabilty

Based on the result of the T-Test  $H_2$  have a significance value is 0.544 and coefficient regression with a value of 0.042 which means that Value-Added Human Capital does not impact towards profitability (ROA) and it can be concluded that  $H_2$  is denied. Wijaya et al., (2020) proved that Value Added Human Capital do not impact profitability because the lack of human capital contribution. Companies listed on the IDX are more likely to use operational tools already outfitted with sophisticated technological systems, reducing the value creation of their human resources.

### Impact of Structural Capital Value Added Toward Profitability

Based on the result of the T-Test  $H_3$  have a significance value is 0.029 and coefficient regression with a value of -1.242 which means that Structural Capital Value Added have a positive impact towards profitability (ROA) and it can be concluded that  $H_3$  is Accepted. Nurkharimah et al., (2020) proved that Structural Capital Value Added have a positive impact towards profitability. in this case company is able to create value added to generate more profit by managing and using its structural capital effectively and efficiently.

### Impact of Value Added Intellectual Coefficient Toward Profitability

Based on the result of the T-Test  $H_4$  have a significance value is 0,494 and coefficient regression with a value of 0,049 which means that Value-Added Capital Employed does not impact towards profitability (ROA) and it can be concluded that  $H_4$  is denied. According Putri & Gunawan, (2019) this is due to salaries and benefits provided to employees are too high but not accompanied by proper training, so the value added approved by employees cannot be maximized.

### 4. CONCLUSION

Based on the findings of the data analysis and discussion, it is possible to conclude that intellectual capital has no effect on profitability (ROA) of telecommunications infrastructure companies listed on the IDX from 2018-2021. This means that the impact of intellectual capital cannot increase profits and competitiveness, but according to researchers this is due to the pandemic that occurred throughout the world that year, affecting all economic activity.

The theoretical implications of this research are expected to share knowledge about the factors that influence profitability. In addition, the practical implications are: For employees, increasing employee competence and high knowledge to be able to maintain quality also creates added value and competitive advantage. For management, effectively surge the competitiveness of companies to achieve competitive advantage so that companies can survive and expand.

### 5. SUGGESTIONS

It is suggested that future research include other variables that may affect profitability, such as sales and promotions, or add moderating variables. Furthermore, future research may use other industries, such as manufacturing and banking, which have more samples and can lengthen the research period.

As for the management of the telecommunication infrastructure, is to be able to continue to improve the company's performance, in utilizing and managing those assets owned by the company. Especially structural capital in order to increase value creation added for the company to improve profitability and have a competitive advantage over other similar companies.

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