

# Modelling the Impact of Intellectual Capital on Firm Sustainability: A Case of Indonesian Consumer Goods Companies

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## Abstract

*This research aims to analyze intellectual capital components such as human capital, structural capital, employed capital, and sustainable growth, as well as their relationship with financial performance. The study concentrates on Consumer Goods Industry firms listed on the Indonesia Stock Exchange. The research involved 27 companies chosen via purposive sampling for the study. The IBM SPSS software is used as the analytical instrument for performing numerous linear regression analyses. This research has shown that the development of sustainable growth is influenced by human capital, structural capital, and relationship capital. The financial performance factor can boost the influence of intellectual capital on sustainable development. The research reveals a new link between intellectual capital and sustainable development by examining financial performance as a moderating element. The study utilized financial reports from companies in Indonesia's consumer goods industry for data collection. The characteristics of each company sector vary, so the research findings cannot be extrapolated to companies in different sectors, like the service sector.*

**Keywords:** Knowledge Assets, People Assets, Organizational Assets, Invested Capital, Monetary Results, Steady Expansion.

## Introduction

Business sustainability is essential for companies amidst the current turmoil in all aspects of global life. Unfavourable environmental changes in the business world occurred during the Covid-19 pandemic. Companies experienced instability both in terms of demand and sales. Sustainability will continue to grow if the company can manage all its resources well (Xu and Wang: 2018). Companies that have superior resources will be able to achieve good long-term performance. A company possesses three kinds of resources: physical resources (like raw materials, technology, factories, and equipment), human resources (including training, experience, and knowledge), and organizational resources (such as formal structure). The company's differentiation from others, as well as its ability to secure a competitive advantage and ensure business continuity in the future, will be determined by the resources it utilizes and how they are integrated (Agustia et al., 2021).

A company gains a competitive advantage by implementing a unique value-creating strategy that competitors need to be utilizing and are unable to duplicate. Businesses must focus on methods and strategies that are difficult to duplicate. Businesses must shift from a labor-centric model to one centered on knowledge. In this system, the emphasis is on the more excellent value of knowledge and technology-based capital over traditional forms such as natural resources and financial assets. By using science and technology, new ways to use more resources efficiently and cost-effectively will be found. Intellectual capital is seen as crucial for improving competitiveness and ensuring the long-term survival of businesses. Intellectual capital is the source of knowledge or intangible assets in a company (Duff, 2017).

Intellectual capital refers to the unique internal resources of a company that has the potential to generate value for the company (Smriti and Das, 2018). According to the resource-based view (RBV), organizations that possess valuable and rare resources have a greater chance of achieving lasting competitive advantage. These tools can help businesses retain employees, enhance operations, stay connected with clients and vendors, and foster greater creativity.

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Organizations are required to conduct activities deemed essential by stakeholders and communicate all such activities to stakeholders for their benefit. Stakeholder theory aids managers in comprehending their surroundings and conducting better company management. Barney (1991).

Intellectual capital is viewed as a factor that enhances company performance, leading to a competitive edge and long-term success in the business world. Studies have shown that intellectual capital impacts the performance of a company; companies possessing valuable resources will gain competitive benefits and lead companies toward strong long-term performance (Meles et al., 2016).

Good intellectual capital management will create sustainable growth for the company (Mukherjee & Sen, 2019). The company is expected to grow and thrive without relying on outside funds for its production activities. Utilizing sustainable growth can be advantageous for companies as a valuable financial planning tool for ensuring company longevity. The reason for this is that with sustainable growth, investors and managers can assess if the company's future growth strategies align with its current performance (Amouzesh et al., 2011).

The research by Xu and Wang (2018) indicates that organizations with higher levels of intellectual capital tend to experience sustainable growth. Mukherjee and Sen's (2019) study demonstrates that a business's sustainable growth is significantly impacted by intellectual capital and its various elements, with a particular focus on structural capital. The elements that form intellectual capital consist of human, structural, and relational components. The company benefits from the value created by each of these three components (Xu & Wang, 2018). The impact of each element of intellectual capital on sustainable growth across different industries has been examined. A study conducted by Meles et al. (2016) demonstrated that human capital plays the most significant role in influencing company performance as part of intellectual capital. Nimtrakoon (2015) and Bontis et al. (2018) both suggest that human and structural capital are the key factors influencing company performance, along with human and relational capital, respectively.

Multiple researchers have conducted studies on intellectual capital and have found varying outcomes. Xu and Wang's (2018) study on manufacturing firms in Korea reveals how intellectual capital enhances financial performance and sustainable growth. Various findings presented by Agustia et al. (2021) indicate that intellectual capital positively impacts the financial performance of manufacturing firms in Indonesia, while it does not affect sustainable growth.

It is assumed that the company's production activities do not need to depend on funds from external parties, so the company is expected to continue to grow and survive. Using sustainable growth can benefit companies as an effective financial planning tool for company survival. This is because by using sustainable growth, investors and managers can measure whether the company's future growth plans are based on the reality of the company's current performance (Amouzesh et al., 2011).

Xu and Wang (2018) discovered that firms with more significant intellectual capital tend to achieve sustainable growth. The study by Mukherjee and Sen (2019) demonstrates that a company's sustainable growth is significantly affected by intellectual capital and its various components, with a particular emphasis on structural capital. The human, structural, and relational components constitute intellectual capital. These three elements play individual roles in generating value and advantages for the company (Xu & Wang, 2018). Every aspect of intellectual capital has been examined to determine its impact on long-term growth across different industries. A study conducted by Meles and colleagues in 2016 revealed that human capital has the most significant impact on company performance out of all components of intellectual capital. Nimtrakoon (2015) and Bontis et al. (2018) highlight human capital as a critical factor influencing company performance, along with either structural capital or relational capital.

Multiple researchers have studied intellectual capital and have found varying results. Xu and Wang's (2018) study on manufacturing firms in Korea demonstrates how intellectual capital has a beneficial impact on both financial performance and sustainable growth. Agustín et al. (2021) revealed varied research findings indicating that in Indonesian manufacturing firms, intellectual capital positively impacts financial

performance but does not affect sustainable growth. Various research findings also demonstrate the elements of intellectual capital.

Ginesti and colleagues (2018). Xu and Wang (2018) and Camfield et al. (2018) demonstrate that financial performance is positively impacted by human capital, structural capital, and relational capital. Contrary to other scholars, Smriti and Das (2018) demonstrate that while human capital has no impact on financial performance, other factors do have a beneficial effect. A study conducted by Sujati and Januarti (2021) reveals that within Indonesian service firms. Nonetheless, while human capital and relationship capital contribute positively, the structural capital element demonstrates a negative impact on financial performance. The inconsistency in these findings presents an opportunity for researchers to delve deeper into the impact of intellectual capital and its elements on promoting long-term development.

This study also validates the assertion made by Cantele and Zardini (2018) that businesses aiming to enhance their financial results need to grasp their long-term sustainable development abilities, particularly the impact of intellectual capital on sustainable expansion. This statement suggests that there is still a chance to explore how financial performance plays a role in helping the company achieve sustainable growth in the future. This study aims to uncover a novel connection between intellectual capital and sustainable growth, with financial performance as a moderating factor.

## Literature Review

### *Hypothesis Development*

#### *Stakeholder Theory*

The concept of stakeholder theory was introduced by R. Edward Freeman in 1984 and revolves around morals and values in managing organizations, focusing on organizational management and business ethics. According to stakeholder theory, the stronger the relationship between the business and the corporation, the simpler it will become. On the flip side, the more strained the corporate relationship, the harder it will become. Healthy relationships with stakeholders are founded on trust, respect, and collaboration (Untung, 2014).

According to stakeholder theory, a company must not only prioritize its own interests but also deliver advantages to its stakeholders. Therefore, the presence of a company is heavily impacted by the assistance given by stakeholders. Stakeholders have the power to manage or impact the company's utilization of economic resources (Chairiri & Ghozali, 2014). Stakeholder theory explains that companies, especially management, report activities that have been carried out to stakeholders. One of the most efficient ways for organizations to communicate with stakeholders is through financial reports. When managers can manage the company optimally, especially in value creation, then managers have fulfilled the ethical aspects of this theory. Utilizing all the company's potential, employees, and physical assets is value creation from this theory. Good management will generate added value for the company, driving financial performance.

#### *Sustainable Growth*

Arora et al. (2018) suggest that managers can benefit from adopting a forward-thinking and valuable approach known as sustainable growth to balance operational and financial strategies. Utilizing sustainable growth can help companies by serving as a valuable financial planning tool for ensuring company longevity. Higgins' 1977 research popularized sustainable growth (Mukherjee & Sen, 2019). Higgins uses the sustainable growth rate (SGR) to determine sustainable growth, which is the highest level a company can grow using its funds, avoiding borrowing from banks or financial institutions (Xu & Wang, 2018). It is assumed that the company's production activities will continue to thrive and remain independent from external funding due to its capability to utilize internal funds, allowing it to grow and survive. Sustainable growth in this study is proxied by the SGR or sustainable growth rate, which the formula will measure:

$$\text{SGR} = \text{Net Profit Ratio} \times \text{Asset Turnover Ratio} \times \text{Retention Rate} \times \text{Equity Multiplier}$$

Where :

Net profit ratio = net profit: sales

Asset turnover ratio = Sales: total assets

Retention rate = retained earnings: net profit

Equity Multiplier = total assets: total equity

(Xu and Wang, 2018).

### *Financial Performance*

Business performance results from company activities, which are influenced by internal and external factors in achieving the goals set during a specific period (Brigham & Houston, 2006). The results of company performance assessments are helpful in decision-making and can be used to see the extent of success in resource management.

Business performance can be assessed from the point of view of financial performance or non-financial performance. Brigham and Houston (2006) state that financial performance is the relative performance of companies in an industry, characterized by the annual return of the industry concerned. Financial performance measurement generally uses profitability to measure management effectiveness, as shown by comparing sales and company investment profits. Some researchers argue that profitability is the best indicator of whether an organization is doing something right.

Return on Assets (ROA) and Return on Equity (ROE) are commonly utilized for assessing financial performance. ROA is a measure of how effectively a company uses its total assets, determined by dividing net income by the average total assets. ROE is the profit return from ordinary shares for shareholders, determined by dividing net profit by average shareholder equity (Xu and Wang; 2018). This research utilizes Return on Assets (ROA) as a metric to evaluate a company's financial performance.

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

Source : Xu & Wang (2018)

### *Intellectual Capital*

Intellectual capital is defined as the sources of knowledge or intangible assets within a company (Duff, 2017). Intellectual capital includes resources like knowledge, skills, networks, processes, and relationships that enhance a company's value. In the initial stages of the study, intellectual capital consisted of human capital and structural capital. Employee skills, dedication, drive, and faithfulness are closely tied to human capital, which serves as the basis of intellectual capital. Structural capital includes innovative capital, Relationship Capital, and organizational infrastructure. In the last two decades, experts have reached a consensus on the components of intellectual capital, which consists of human capital, structural capital, and relational capital. Researchers widely acknowledge that the components of human capital, structural capital, and relational capital are being examined separately within the intellectual capital model in academic and practical research studies rather than as a unified entity (Xu & Wang, 2018; Smriti and Das, 2018; Xu & Li, 2020).

Relationship Capital is the combined knowledge possessed by the whole organization. It is also deemed necessary when interacting with suppliers and customers (Farrukha and Joiyaa: 2018, Xu and Wang: 2018, Xu and Li, 2020). Human resources are an essential component of intellectual resources. One of the critical

assets for gaining a competitive edge is human capital, which is the knowledge and skills possessed by employees used to generate intellectual resources. The presence of structural capital is needed to complement human capital (Meles et al., 2016; Smriti and Das, 2018). Bontis et al. (2018) explained that structural capital comprises of systems that enhance human capital and knowledge, including innovative practices, sustainability and quality assurance, and company culture. In the study by Smriti and Das (2018), it is suggested that structural capital refers to organizational assets like systems, structures, and processes, such as databases, management processes, and company plans. According to Andreeva and Garanina (2016), relational capital refers to the enhanced worth present in organizational connections with clients, vendors, and additional parties involved. In various other research, relational capital is referred to as customer capital. According to Smriti and Das (2018), relational capital oversees the external connections of a company, such as those with suppliers, customers, and stakeholders.

Value Added Intellectual Capital (VAIC) serves as the measure of intellectual capital in this research. Value added is a metric for evaluating the effectiveness of intellectual capital. The formula for calculating value added is utilized.:

$$VA = D + A + OP + EC$$

Sources: Smriti dan Das (2018)

Where:

VA = Value Added

D = Depreciation

A = Amortization

OP = Operating profits

EC = Employee cost

Human capital in this research is proxied by Human Capital Efficiency (HCE), which is calculated using the formula:

$$HCE = \frac{\text{Value added (VA)}}{\text{total of salary and wages}}$$

Source: Smriti and Das (2018)

Structural capital in this study is proxied by Structural Capital Efficiency (SCE). Smriti and Das (2018) calculate SCE with the formula:

$$SCE = \frac{\text{Value added (VA)} - \text{total of salary and wages}}{\text{Value added (VA)}}$$

Source: Smriti and Das (2018)

Relational capital in this research is proxied by Capital Employed Efficiency (CEE), which is calculated using the formula:

$$CEE = \frac{\text{Value added (VA)}}{\text{total assets} - \text{intangible assets}}$$

Source: Smriti and Das (2018)

VAIC is the sum of HCE, SCE, and CEE.

$$VAIC = HCE + SCE + CEE$$

Source: Smriti and Das (2018)

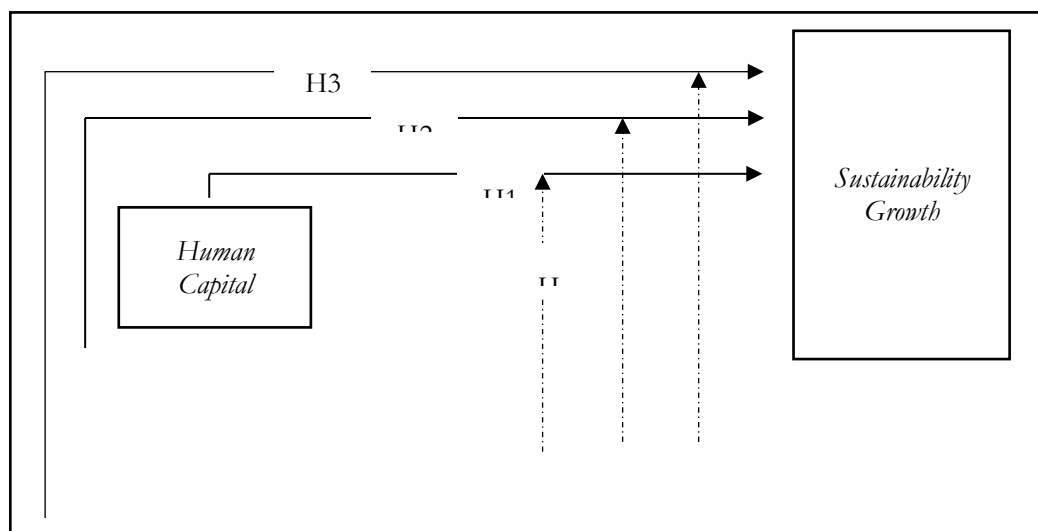
### Framework

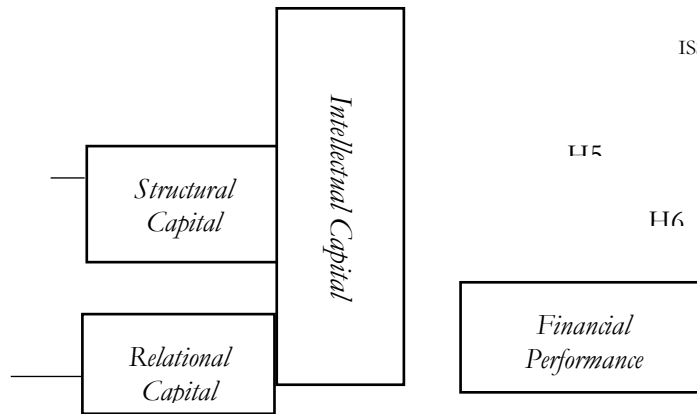
This study discusses the resource-based theory, which states that the company's potential or assets vary in nature. The diversity results in distinctiveness in every potential asset possessed by the organization, leading to varied characteristics for each company (Barney, 1991). Within the realm of intellectual capital, resources such as knowledge and skills are considered highly valuable due to their difficulty in replicating. Intellectual capital has the potential to provide a distinctive quality to the company as a resource. (Sujati and Januarti: 2021) It should be cited. By effectively managing intellectual capital through resource-based theory, it is anticipated that all aspects of intellectual capital can contribute to enhancing company competitiveness, ultimately leading to improved financial performance. The company's rate of return mirrors its financial performance. The improved intellectual capital performance correlates with superior economic performance (Smriti and Das, 2018).

Xu and Wang (2018) suggest that the intellectual capital of a company, including human capital, structural capital, and relational capital, serves as a crucial resource for enhancing organizational management. Organizational resources will be able to plan sustainable growth in the long term (sustainable growth). Forte et al. (2017) consider intellectual capital as internal potential (competence, skills, leadership, procedures, knowledge) and external potential (image, brand, alliance, customer satisfaction), which are dynamically tangible and mutually available to an organization that can pursue sustainable value creation. In other words, good intellectual capital management will create a company's sustainable growth.

Intellectual capital and financial performance are valuable assets for companies to succeed in the competitive landscape. The benefits of these two factors are advantageous for businesses to increase profits and sustain the company in the long run. The company's intellectual capital superiority will impact the company's long-term financial performance. The company's financial performance for the current year is positively influenced by intellectual capital and can also serve as a predictor of its future financial performance (Ulum et al., 2017). Companies that have the strength to maintain financial performance in the future can strengthen their ability to increase sustainable growth in the long term (sustainable growth).

Figure 1. Framework Conceptual





Gambar 1 Kerangka Pemikiran

Sources: Ulum et al. (2017); Smriti & Das (2018)

### *Hypothesis Development*

- *Intellectual Capital and Sustainable Growth*

The company possesses resources that can provide a competitive edge and drive long-term solid performance. Businesses require these capabilities to enable their workforce to boost efficiency, gain a competitive edge, and attain sustainable growth. This concept also pertains to stakeholder theory, wherein companies function not solely for their own gain but must also cater to the needs of stakeholders like shareholders, customers, suppliers, communities, government, and other entities. (Chariri & Ghazali, 2014) Stakeholder theory assists managers in comprehending their surroundings and executing more efficient company management. Managers are responsible for overseeing the organization in a way that benefits all stakeholders. Sustainable growth refers to the ideal financial growth that follows a specific strategy with clear financial conditions. Businesses have the option of utilizing their funds to expand rather than relying on loans from banks or financial organizations (Mukherjee & Sen, 2019). Xu and Wang (2018) claim that Intellectual capital, comprising human capital, structural capital, and relational capital, is a company's resource used as capital to enhance organizational management.

- *Human Capital and Sustainable Growth*

Usually, businesses primarily invest in physical assets and heavily depend on their workforce. The theory of the resource-based view argues that companies possess resources that can provide them with a competitive edge and lead to long-term solid performance (Barney, 1991). Businesses require the skills of their employees to ensure efficient production, establish a competitive edge, and drive sustainable growth. In a study conducted by Xu and Wang (2018), it was demonstrated that intellectual capital plays a crucial role in driving sustainable development. According to a study by Xu and Wang (2018), human capital is a critical element of intellectual capital that has been shown to have a positive impact on the sustainable growth of a company. The hypothesis is established according to these arguments:

H1: Human capital influences sustainable growth.

- *Structural Capital and Sustainable Growth*

Structural capital is a company resource that includes procedures, databases, routines, and corporate culture (Meles et al., 2016). The existence of intellectual capital has been proven to affect sustainable growth significantly (Xu & Wang, 2018). Furthermore, the research explains that structural capital can positively influence the company's sustainable growth. The management of databases, information systems, and good corporate strategy will positively impact

the company's sustainable growth. Based on these arguments, the hypothesis is set:

## H2: Structural capital influences sustainable growth

- *Relational Capital and Sustainable Growth*

Duff (2018) states that relational capital, also called capital employed, includes the company's external relations with customers, suppliers, and regulators and all perceptions of external parties towards the company, including corporate image, customer loyalty and satisfaction, and company reputation. Creating a good reputation and corporate image, as well as customer loyalty and satisfaction, will be suitable capital for the company in operating the company to achieve sustainable company growth. Relational capital has been proven to influence sustainable growth, even being the most influential component compared to other components (Xu & Wang, 2018). Based on these arguments, the hypothesis is set:

## H3: Relational capital influences sustainable growth.

- *Financial Performance Can Moderate the Influence of Intellectual Capital on Sustainable Growth*

Intellectual capital influences how resources are allocated internally, as well as the development of new products and expansion into new markets. Companies establish a unified system of assurance, and intellectual assets can offer a secure setting for the advancement of manufacturing firms. Conversely, manufacturing firms need distinctive resources that are hard for rivals to replicate. According to Xu and Wang (2018), the findings of the study indicate that intellectual capital plays a crucial role in the sustainable development of manufacturing firms. According to Xu and Wang (2018), the intellectual capital held by a company, which includes human, structural, and relational components, serves as a form of capital for enhancing organizational management. Sustainable growth is determined by the sustainable growth rate (SGR), which is the highest point a company can reach using its funds to expand without relying on loans from banks or financial institutions (Xu & Wang, 2018). Businesses that can enhance their financial results will enhance their capacity to control the different parts of intellectual capital to boost sustainable development.

The hypothesis that follows is based on the reasoning provided.

H:4 Improved financial results can enhance the impact of human capital on sustainable development.

H5: Improving financial performance can enhance the impact of structural capital on long-term growth.

H6: Improved financial results can enhance the impact of relationship capital on long-term growth.

### *Methodology and Material*

This study is a quantitative study designed to evaluate the hypothesis. The study participants are companies within the Consumer Goods Industry Sector that are listed on the Indonesia Stock Exchange. This industry was selected due to the high level of competition in both the manufacturing and consumer goods sectors. In underdeveloped nations, the consumer goods sector, as a component of the manufacturing sector, encounters numerous internal and external challenges, including those associated with maintaining business operations (Herrmann et al., 2014). In order to remain competitive, the manufacturing sector requires innovation, as the longevity of the industry heavily relies on the quantity of proficient workers. This attracts researchers to conduct intellectual capital studies in the manufacturing sector (Andreeva & Garanina, 2016; Khalique et al., 2015). A purposive sampling technique was used to select a sample of 27 companies. 135 data points are sourced from the 2016-2020 financial reports for analysis.

The research factors include intellectual capital and its elements as variables that operate independently. The financial performance variable acts as a moderating variable. The dependent variable is the sustainable growth variable.



The IBM SPSS program is utilized as an analytical tool to process the multiple linear regression analysis. The regression model evaluates how the intellectual capital component impacts sustainable growth. This model studies how financial performance acts as a moderating factor in the connection between intellectual capital and sustainable growth.

$$\text{SGR}_2 = \alpha + \beta_1\text{HCE} + \beta_2\text{SCE} + \beta_3\text{CEE} + \beta_4\text{PERF} + \beta_5\text{HCE*PERF} + \beta_6\text{SCE*PERF} + \beta_7\text{CEE*PERF} + \epsilon$$

## Results

### *Descriptive Statistical Analysis*

The following is a table of descriptive statistics in this research:

**Table 2:** Table of Descriptive Statistics

Variable	Mean	Std. Deviation	N
sustainable growth (SGR)	0,1053	0,10238	135
financial performance (PERF)	0,1264	0,12499	135
Human capital (HCE)	2,8624	1,78482	135
structural capital (SCE)	0,5487	0,23288	135
Relational capital (CEE)	0,4889	0,44262	135

Source: processed data (2023)

The average value of the sustainable growth variable is 0.1053. The average value of the financial performance variable is 0.1264. The average value of the human capital variable is 2.8624. The average value of the structural capital variable is 0.5487. The average value of the capital variable relationship is 0.4889.

Classical assumption tests were conducted on the research findings. The outcomes of the classical assumption test demonstrate that the data passes normality, heteroscedasticity, autocorrelation, and multicollinearity tests.

### *Analysis of the Coefficient of Determination (R<sup>2</sup>)*

The coefficient of determination evaluates the extent to which the model can account for the variability in the dependent variable. The Adjusted R Square column in the Model Summary table shows the coefficient of determination (Ghozali, 2016).

**Table 3:** Coefficient of Determination

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>
1	.543	.295	.257

Source: processed data (2023)

Table 3 shows that the Adjusted R<sup>2</sup> (Adjusted R Square) value is 0.257, indicating that the dependent variable is explained by the independent variable 25.7%, and the remaining 74.3% is explained by other variables not examined in this research.

*Hypothesis Testing*

The results of multiple linear regression can be seen in Table 4.

**Table 4:** Research Model Regression Coefficients

Variabel	Koefisian	Signifikansi	Kesimpulan
human capital (HCE)	0,057	0,004***	signifikan
structural capital (SCE)	0,433	0,000***	signifikan
relational capital (CEE)	0,353	0,000***	signifikan
moderasi 1 (HCE*PERF)	0,331	0,007***	signifikan
moderasi 2 (SCE*PERF)	1,506	0,051*	signifikan
moderasi 3 (CEE*PERF)	1,186	0,000***	signifikan

Source: processed data (2023)

According to the findings in Table 4 from the linear regression analysis, the following analysis can be conducted:

- The coefficient for human capital in the regression is 0.057, with a significance level of 0.004, suggesting a notable and positive impact of human capital on sustainable growth.
- The structural capital regression coefficient of 0.433 has a significance value of 0.000, showing a meaningful positive relationship between human capital and sustainable growth.
- The relational human capital coefficient of 0.353 is significantly positive, with a significance value of 0.000, demonstrating a strong connection between human capital and sustainable growth.
- The correlation between human capital and financial performance is statistically significant, with a significance level of 0.007, showing that financial performance has a notable moderating influence on the connection between human capital and sustainable growth.
- The correlation between structural capital and financial performance is significant at a 0.051 level, showing that financial performance is vital in influencing the connection between structural capital and sustainable growth.
- The relationship between relational capital and financial performance has a significance level of 0.000, showing that financial performance dramatically impacts the association between relational capital and sustainable growth.

*Model Feasibility Test (Goodness of Fit Test)*

According to Sujarweni (2017), to find out whether the regression model is suitable or not for use in research, it can be tested using the F test.

**Table 5:** F Test (Goodness of Fit Test)

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	0,415	7	0,059	7,605	0,000 <sup>b</sup>
	Residual	0,990	127	0,008		

Total	1,404	134			
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Source: data processing (2023)

In Table 5, a significance value of 0.000 is obtained, so H0 is rejected, and H1 is accepted, which means that the regression model is feasible to use in this study.

## Discussions

Based on the research results, the research interpretation is as follows:

### *Intellectual Capital with Sustainable Growth*

- *The Influence of Human Capital on Sustainable Growth*

According to the findings of hypothesis testing, human capital efficiency has an impact on sustainable growth. These findings demonstrate that the level of human capital productivity will impact the fluctuations of sustainable development. Human capital has the potential to increase company value when backed by resources beyond just innovative capital. In Industry 4.0, creative assets such as research and development and intellectual property rights play a crucial role in determining how resources are allocated internally, in creating new products, and in entering new markets. The findings of this study are consistent with the research carried out by Xu and Wang (2018), who assert that human capital, as part of intellectual capital, is shown to have a beneficial impact on a firm's long-term development. These findings demonstrate that effective utilization of human capital can empower businesses to gain a competitive edge in order to attain long-term growth.

- *The Influence of Structural Capital on Sustainable Growth*

Based on the results of hypothesis testing, structural capital affects sustainable growth. These results explain that the size of structural capital efficiency will affect the ups and downs of sustainable growth. Structural capital is all supporting infrastructure that supports the company's operations and employee productivity, which includes procedures, databases, routines, and corporate culture (Agustia., 2021). This is what causes structural capital to influence sustainable growth significantly. The results of this study align with research conducted by Xu and Wang (2018), which states that structural capital can positively influence a company's sustainable growth.

- *The Influence of Relationship Capital on Sustainable Growth*

According to the findings of hypothesis testing, relationship capital impacts sustainable growth. These findings demonstrate how the efficiency of capital employed size impacts the fluctuations in sustainable growth. Relational capital is the extra value that organizations create through their interactions with customers, suppliers, and other stakeholders (Agustia et al., 2021). The sustainable growth of a company is influenced by relational capital when it is fully utilized. This shows that the company's interactions with external parties and stakeholders are functioning at the highest level. The findings of this research are consistent with the study done by Xu and Wang (2018), which asserts that relational capital, as part of intellectual capital, has a significant effect on sustainable development. These findings suggest that relational capital can influence the sustainable development of a business. This also shows that companies need a positive reputation, corporate image, and satisfied customers to achieve sustainable growth.

### *Financial Performance Moderates the Influence of Intellectual Capital on Sustainable Growth*

According to the findings from hypothesis testing, financial performance can moderate the impact of every aspect of intellectual capital on sustainable growth. These findings demonstrate that the magnitude of financial performance can enhance the impact of intellectual capital on sustainable development. The way

in which tangible and intangible assets are used together has a significant impact on how well a company can continue its operations in the future. Intellectual capital decides how internal resources are allocated, new products are developed, and new markets are entered. Businesses establish a comprehensive security system, and intellectual property can ensure a secure environment for the expansion of manufacturing companies. Conversely, manufacturing firms need distinctive resources that are challenging for rivals to copy. The study findings indicate that intellectual capital is the primary factor driving the sustainable expansion of manufacturing firms (Xu and Wang: 2018). Xu and Wang (2018) affirm that the intellectual capital possessed by a company, consisting of human, structural, and relational components, functions as a resource for improving organizational management. Sustainable growth is determined by the sustainable growth rate (SGR), representing the highest level a company can expand using its funds without taking loans from banks or financial institutions (Xu & Wang, 2018). Companies that enhance financial performance will boost their capacity to oversee intellectual capital elements for enhanced sustainable growth.

## Conclusions

### Limitations, and Directions for Future Research

This study shows that structural capital has the most significant impact on fostering sustainable growth in consumer goods industry firms that are listed on the Indonesia Stock Exchange. This study shows that human capital, structural capital, and relational capital significantly influence sustainable development. Enhancing financial performance can boost the influence of all forms of intellectual capital on sustained growth.

The limitation of this research lies in the data collected from the financial reports of consumer goods firms that are publicly traded on the Indonesian Stock Exchange. The attributes of different company sectors or sizes differ, so the findings of this research may not be relevant to small and medium-sized companies or those in the service industry. Further investigation is advised to use a broader perspective model that can be implemented in service sector companies and small to medium-sized businesses.

## References

- Agustia, Dian, Nur Fadrijh Asyik, Nidia Mudiantari. 2021. Intellectual Capital Terhadap Financial Performance Dan Sustainable Growth. *Ekuitas: Jurnal Ekonomi dan Keuangan*. ISSN 2548 – 298X. Volume 5, Nomor 2, 158-178.
- Amouzesh, N., Z. Moeinhar, dan Z. Mousavi. 2011. Sustainable Growth Rate and Firm Performance: Evidence from Iran Stock Exchange. *International Journal of Business and Social Science* 2(23): 249-255.
- Andreeva, T. dan T. Garanina. 2016. Do All Elements of Intellectual Capital Matter for Organizational Performance? Evidence from Russian Context. *Journal of Intellectual Capital* 17(2): 397-412. doi: 10.1108/jic-07-2015-0062.
- Arora, L., S. Kumar, dan P. Verma. 2018. The Anatomy Sustainable Growth Rate of Indian Manufacturing Firms. *Global Business Review* 19(4): 1-22.
- Barney, J. B. 1991. Firm Resource and Sustained Competitive Advantage. *Advances in Strategic Management* 17: 203-227.
- Bontis, N., M. Ciambotti, F. Palazzi, dan F. Sgro. 2018. Intellectual Capital and Financial Performance in Social Cooperative Enterprise. *Journal of Intellectual Capital* 19(4): 712-731. <https://doi.org/10.1108/JIC-03-2017-0049>.
- Brigham, E. F. dan J. F. Houston, 2006. *Fundamentals of Financial Management*. Ninth Edition. Horcourt College. United States of America.
- Camfield, CG, CP Giacomello, MA Sellitto. 2018. The impact of intellectual capital on performance in Brazilian companies. *Journal of Technology Management & Innovation*. Volume 13, Issue 2
- Cantele, S. dan A. Zardini. 2018. Is Sustainability a Competitive Advantage for Small Businesses? An empirical Analysis of Possible Mediators in the Sustainability Financial Performance Relationship. *Journal of Cleaner Production* 182: 166-176. doi:10.1016/j.jclepro.2018.02.016.
- Chariri, A dan Ghozali, I. 2014. *Teori Akuntansi*. Semarang : Badan Penerbit Universitas Diponegoro.
- Duff, A. 2018. Intellectual Capital Disclosure: Evidence from UK Accounting Firms. *Journal of Intellectual Capital* 19(4): 768-786. <https://doi.org/10.1108/JIC-06-2017-0079>.
- Farrukha, Wafa dan Javaria Qais Joiyaa. 2018. Impact of Intellectual Capital on Firm Performance. *Global Journal of Economics and Business Administration* (ISSN:2475-6350). Vol 3, No 4.
- Forte, W., J. Tucker, G. Matonti, dan G. Nicolo. 2017. Measuring the Intellectual Capital of Italian Listed Companies. *Journal of Intellectual Capital* 18(4): 710-732. <https://doi.org/10.1108/JIC-08-2016-0083>.
- Ginesti, Gianluca, Adele Caldarelli, Annamaria Zampella. 2018. Exploring the Impact Of Intellectual Capital On Company Reputation And Performance. *Journal of Intellectual Capital*, Vol. 19 Iss 5 pp. 935-964.

- Ghozali, I. 2016. Aplikasi Analisis Multivariate dengan Program IBM SPSS 21. Semarang: Badan Penerbit Universitas Diponegoro.
- Herrmann, C., C. Schmidt, D. Kurle, S. Blume, dan S. Thiede. 2014. Sustainability in Manufacturing and Factories of the Future. *International Journal of Precision Engineering and Manufacturing- Green Technology* 1(4): 283- 292. doi:10. 1007/s40684-014-0034-z.
- Iqbal Khan, T., Kaewsaeng-on, R., Hassan Zia, M., Ahmed, S., & Khan, A. Z. (2020). Perceived organizational politics and age, interactive effects on job outcomes. *SAGE Open*, 10(3), 2158244020936989.
- Kuo, Y. K., Khan, T. I., Islam, S. U., Abdullah, F. Z., Pradana, M., & Kaewsaeng-On, R. (2022). Impact of green HRM practices on environmental performance: The mediating role of green innovation. *Frontiers in Psychology*, 13, 916723.
- Khan, T. I., Akbar, A., Jam, F. A., & Saeed, M. M. (2016). A time-lagged study of the relationship between big five personality and ethical ideology. *Ethics & Behavior*, 26(6), 488-506.
- Khan, F. A. J. T. I., Anwar, F., Sheikh, R. A., & Kaur, S. (2012). Neuroticism and job outcomes: Mediating effects of perceived organizational politics. *African Journal of Business Management*, 6(7), 2508.
- Khan, T. I., Kaewsaeng-on, R., & Saeed, I. (2019). Impact of workload on innovative performance: Moderating role of extrovert. *Humanities & Social Sciences Reviews*, 7(5), 123-133.
- Khan, T. I., & Akbar, A. (2014). Job involvement-predictor of job satisfaction and job performance-evidence from Pakistan. *World Applied Sciences Journal*, 30(30), 8-14.
- Khalique, M., N. Bontis, J. A. N. b. Shaari, J., dan A. H. Md. Isa. 2015. Intellectual Capital in Small and Medium Enterprises in Pakistan. *Journal of Intellectual Capital* 16(1): 224-238. <http://doi.org/10.1108/JIC-01-2014-0014>.
- Meles, A. C. Porzio, G. S. Naro, dan V. Verdoliva. 2016. The Impact of Intellectual Capital Efficiency on Commercial Banks Performances: Evidence from US. *Journal of Multinational Financial Management* 36(Sept): 64-74.
- Mukherjee, T. dan S. S. Sen. 2019. Intellectual Capital and Corporate Sustainable Growth: The Indian Evidence. *Asian Journal of Business Environment* 9(2): 5-15.
- Nimtrakoon, S. 2015. The Relationship between Intellectual Capital, Firms' Market Value and Financial Performance. *Journal of Intellectual Capital* 16(3): 587-618. doi:10.1108/jic-09-2014-0104.
- Sujati, K.A., & Januarti, I. 2021. The Effect Of Intellectual Capital Efficiency On Company's Market Value With Company's Financial Performance As Intervening Variables. *Jurnal Reviu Akuntansi Dan Keuangan*, 11(2), 332- 345. DOI: 10.22219/jrak.v11i2.15116
- Smriti, N. dan N. Das. 2018. The Impact of Intellectual Capital on Firm Performance: A Study of Indian Firms Listed in COSPI. *Journal of Intellectual Capital* 19(5): 935-964. doi:10.1108/jic-11-2017-0156.
- Ulum, I., Kharismawati, N. and Syam, D. 2017. Modified Value Added Intellectual Coefficient (MVAIC) and Traditional Financial Performance of Indonesian Biggest Companies, *International Journal of Learning and Intellectual Capital*, 14(3), pp. 207–219. doi: 10.1504/IJLIC.2017.086390.
- Untung, Budi, 2014, CSR Dalam Dunia Bisnis, Yogyakarta : Andi
- Xu, J. and Jingsuo Li. 2020. The Interrelationship Between Intellectual Capital and Firm Performance: Evidence from China's Manufacturing Sector. *Journal of Intellectual Capital*, pp. 1469-1930. DOI 10.1108/JIC-08-2019-0189
- Xu, J. dan B. Wang. 2018. Intellectual Capital, Financial Performance and Companies' Sustainable Growth: Evidence from Korean Manufacturing Industry. *Sustainability* 10: 4651.