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The Implementation of Green Human Resource Management: A Survey on the Manufacturing Industry in Indonesia

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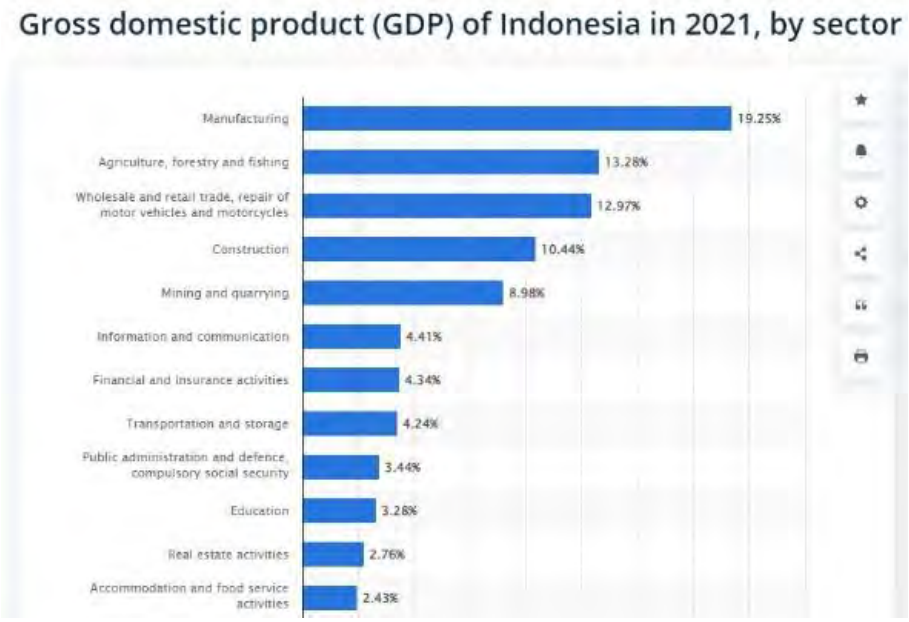
Abstract

This study investigates the implementation of Green Human Resource Management (GHRM) in the manufacturing industry in Indonesia, with a focus on achieving sustainable organizational performance. It addresses a research gap and develops conceptual models to advance sustainable development goals (SDGs), particularly in Indonesia, encompassing social, economic, educational, health, and environmental aspects. A survey method was employed, utilizing an associative quantitative approach with multivariate statistical techniques, specifically structural equation modeling partial least squares (SEM-PLS). The study involved 75 manufacturing enterprises in Indonesia's Karawang industrial district, with Managers or Supervisors serving as respondents. Data was collected using a questionnaire as the primary measurement instrument. The research falls under TKT 2 in terms of technology readiness, involving the formulation of a research model concept. Key findings suggest that the implementation of GHRM practices in the manufacturing industry positively impacts Green Intellectual Capital and contributes to sustainable organizational performance. Furthermore, the study underscores the importance of GHRM in enhancing environmental sustainability and organizational competitiveness within the Indonesian manufacturing sector.

Keywords: Green Intelectual Capital (GIC), Green Human Resource Management (GHRM), Sustainability Organizational Performance (SOP)

1. INTRODUCTION

Indonesia, as a United Nations member, is dedicated to fulfilling the Sustainable Development Goals (SDGs) established by the UN in 2015. With its status as a developing nation characterized by a sizable population and abundant natural resources, Indonesia holds a pivotal role in the pursuit of the SDGs. This places Indonesia in a significant position to propel sustainable development not only within Asia but on a global scale. Achieving the SDGs unquestionably demands the active participation of various stakeholders, encompassing governmental bodies, the private sector, and the general public. Among the private sector, the manufacturing industry stands out as a particularly compelling area of focus.



Gambar 1. PDB Indonesia 2021 Sumber: *www.statista.com (diakses 2023)*

Manufacturing industry contributes at least 19.25% to Indonesia's GDP or the top three industries that have a significant impact on economic growth in Indonesia, making this industry play a crucial role in environmental sustainability. Therefore, it is important for manufacturing companies in Indonesia to intensify the implementation of a green economy. The implementation of a green economy is not only beneficial for environmental sustainability but also has a positive impact on organizational or company performance (Kim et al., 2019; Bombiak & Marciniuk-Kluska, 2018; Pham et al., 2020; Mousa & Othman, 2020). For the successful implementation of a green economy in a company, strong support from internal factors such as top management commitment, green human resource management (GHRM) practices, and green intellectual capital (GIC) is essential, ultimately improving company performance and its sustainability (Abbas & Sağsan, 2019; Yu et al., 2020; El-Kassar & Singh, 2019; Amrutha & Geetha, 2020; Yong et al., 2019; Yusliza et al., 2019). The lack of empirical evidence regarding the implementation of GHRM in the manufacturing industry in Indonesia can hinder the achievement of sustainable company performance and SDGs. Based on the bibliometric analysis of 200 articles extracted from the SCOPUS database from 2017 to 2023 using the keyword "GHRM," the visualization is as follows:

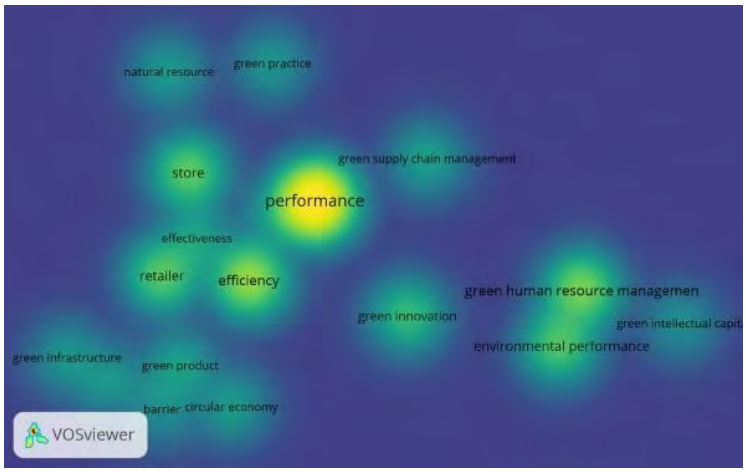


Figure 2. Density Visualization in GHRM Study

Figure 2 shows the results of density visualization using VOS Viewer, indicating that keywords such as 'green human resource management' are closely related to 'green intellectual capital,' 'green innovation,' and 'environmental performance.' However, the density level in Figure 2 reveals that the keywords GHRM and GIC have a low density, indicating a lack of research conducted on these keywords. This finding is further supported by the co-occurrence mapping analysis in Table 1, which demonstrates that 'green human resource management' has a high level of relevance and occurrence, while 'green intellectual capital' has a high level of relevance but a low occurrence, highlighting the urgency to fill the gap in empirical studies. Furthermore, this research is relevant to the National Research and Innovation Roadmap (RIRN) 2017-2045 in the field of economics and human resources, specifically in the theme of industry and manufacturing.

Tabel 1. Scores for Occurrence And Relevance From The GHRM Study

id	Term	occurences	relevance score
1	Barrier	5	1.3513
2	Green Intellectual Capital	5	1.7588
3	Green Technology	5	0.6216
4	Energy Efficiency	6	1.4252
5	Green Infrastructure	6	1.1239
6	Green Practice	6	0.4645
7	Circular Econnomy	7	0.9754
8	Natural Resource	7	0.434
9	Effectiveness	8	2.2174
10	Green Product	8	1.5421
11	Green Supply Chain Management Practice	8	0.9094
12	Green Innovation	14	0.3521
13	Environmental Performance	18	1.1418
14	Industry	19	0.4618
15	Manufacture	20	1.0898
16	Green Human Resource Management	24	1.1621
17	Efficiency	30	0.3198
18	Performance	76	0.6491

Source: Data that has been processed (2023)

Green Human Resource Management (GHRM) is a concept of human resource management that focuses on practices aimed at improving organizational performance in terms of environmental sustainability (Bombiak & Marciniuk-Kluska, 2018). GHRM encompasses various practices such as recruitment and selection, training and development, performance management, and compensation that integrate environmental and social considerations into human resource management decision-making (Zaid et al., 2018). Some manufacturing industries in Indonesia have begun to implement green human resource management (GHRM) practices to enhance their organizational performance while also considering the sustainability of the surrounding environment. However, it is undeniable that there are various challenges in implementing GHRM practices. These challenges include the lack of awareness and understanding of GHRM, the lack of awareness of the importance of GHRM practices for environmental sustainability and organizational performance (Singh et al., 2018). Secondly, there is a lack of investment related to infrastructure and available technologies in Indonesia, such as the use of renewable energy and green technologies (Song et al., 2019). Thirdly, there may be resistance to cultural and organizational behavior change due to the shift towards environmentally friendly practices in daily activities (Pan et al., 2018).

Moreover, the limited knowledge, skills, and experience related to environmentally friendly practices, also known as green intellectual capital (GIC), possessed by individuals and organizations can make it challenging for organizations to implement GHRM. GIC also includes understanding how to manage natural resources efficiently, reduce waste and emissions, and promote socially and environmentally responsible business practices (Singh et al., 2018). Green intellectual capital also encompasses the ability to design and develop environmentally friendly products and services, as well as to apply technologies and innovations that support sustainability (Fernando et al., 2019). This is important for companies and organizations in various sectors to manage environmental risks and meet the demands of increasingly environmentally conscious consumers. By having strong green intellectual capital, companies and organizations can gain a competitive advantage in an increasingly sustainable market (Yusliza et al., 2020).

2. LITERATURE REVIEW

2.1 Green Intelectual Capital (GIC)

GIC is defined as a combination of resources related to knowledge, intellectual wealth, capabilities, and infrastructure that determine an organization's competitive ability (Sharabati et al., 2010). GIC focuses on all intangible resources that can be utilized by a company to achieve competitive advantage (Roos & Roos, 1997; Stewart, 2010; Sullivan, 1998). In scholarly literature, intellectual capital is often defined as the sum of three interrelated and mutually supportive components: human capital, structural capital (sometimes referred to as organizational capital), and relational capital or customer capital (Atkočiūnienė & Praspaliauskytė, 2018). When analyzing intellectual capital and its components, it should be noted that intellectual capital is intangible and difficult to measure; therefore, there is no measurement model that can be universally applied to all organizations (Marr et al., 2004). Human capital, as a central component, serves as a driver for the structural and relational aspects of GIC (Li & Chang, 2010). According to Chahal and Bakshi (2015), human capital is an organization's ability to create value through the use of its employees' experiences, learning, skills, education, competencies, and creativity (Iqbal et al., 2019). Furthermore, relational capital is related to the knowledge and learning capabilities generated not only from the relationships between an organization's employees and stakeholders but also from other relational resources such as customer loyalty, brand, and reputation (Agostini et al., 2017).

2.2. Green Human Resource Management (GHRM)

GHRM is a human resource management concept that focuses on practices aimed at improving organizational performance in terms of environmental sustainability (Bombiak & Marciniuk-Kluska, 2018). GHRM encompasses various practices such as recruitment and selection, training and development, performance management, and compensation that integrate environmental and social considerations into human resource management decision-making (Zaid et al., 2018). Some manufacturing industries in Indonesia have started implementing green human resource management (GHRM) practices to enhance their organizational performance while ensuring the sustainability of the surrounding environment. However, it cannot be denied that there are various challenges in implementing GHRM practices. These challenges include the lack of awareness and understanding of GHRM, insufficient awareness of the importance of GHRM practices for environmental sustainability and company performance (Singh et al., 2018). Secondly, there is a lack of investment in infrastructure and technology related to renewable energy and green technologies available in Indonesia (Song et al., 2019). Thirdly, there is resistance to cultural and organizational behavior change that may occur due to a shift towards incorporating environmentally friendly practices in daily activities (Pan et al., 2018)."

2.3. Sustainability Organizational Performance (SOP)

Company performance is a measure of how well a company can achieve its goals and objectives compared to its main competitors (Kurniawan, 2021; Cao & Zhang, 2011). Generally, superior company performance is typically characterized by profitability, growth, and market value (Cho & Pucik, 2005). Venkatraman & Ramanujam (1986) proposed that organizational performance is a hierarchical construct that indicates both financial performance and operational performance, such as market share and quality (Rajapathirana & Hui, 2018). Organizational performance serves as the dependent variable or criterion in the field of management and has been one of the most extensively researched variables to measure organizational success. As expected, significant scholarly attention has been directed towards understanding the causal structure of company performance and explaining performance variations among competing businesses (March & Sutton, 1997).

3. RESEARCH METHOD

"Green Intellectual Capital also requires knowledge of how to effectively manage environmental resources, reduce waste and pollution, and support ethical corporate practices (Singh et al., 2018). The ability to create and develop environmentally friendly goods and services and to implement new ideas and technologies to support sustainability is an example of having 'green intellectual capital' (Fernando et al., 2019). It is crucial for businesses and organizations in all industries to manage environmental hazards and meet the demands of increasingly environmentally conscious customers. Companies and organizations can gain a competitive advantage in a more sustainable market by having strong green intellectual capital (Yusliza et al., 2020). Therefore, in this study, the author expects the following relationship:

H1: There is a positive relationship between Green Intellectual Capital and Sustainability Organizational Performance.

To integrate environmental and social factors into human resource management decision-making, GHRM consists of various techniques, including recruitment and selection, training and development, performance management, and compensation (Zaid et al., 2018). In order to boost organizational performance while still considering the preservation of the surrounding environment, several manufacturing sectors in Indonesia have begun implementing green human resource management (GHRM) techniques. However, there are several challenges in implementing GHRM practices. These include a lack of knowledge and understanding of GHRM, failure to recognize the importance of GHRM practices for both business performance and environmental preservation (Singh et al., 2018). The adoption of renewable energy sources is an example of the lack of investment in technology and infrastructure in Indonesia, such as the implementation of green technology and renewable energy (Song et al., 2019). Third, resistance to behavioral and organizational changes that can arise from prioritizing environmentally friendly practices in daily activities (Pan et al., 2018). Therefore, in this study, the author expects the following relationship:

H2: There is a positive relationship between Green Intellectual Capital and Green Human Resource Management.

Several previous studies have explained that GIC and GHRM are two important sources of competitive advantage and organizational performance (e.g., Lerro et al., 2014; Mills & Smith, 2011; Shih et al., 2010). Much literature has recognized the role of GIC processes in the development of GHRM (Gold et al., 2001; Ramadan et al., 2017; Schiuma et al., 2012). Furthermore, researchers have emphasized the close relationship between GIC and GHRM (Seleim & Khalil, 2011; Serenko et al., 2010; Serenko & Bontis, 2004) and when combined in

organizational strategy, they can yield desired performance outcomes (Cao & Zhang, 2011; Lerro et al., 2014; Wang & Chen, 2013). Furthermore, a study conducted by Atkočiūnienė & Praspaliauskytė (2018) supports the findings of previous research by explaining the correlation between Knowledge Management and intellectual capital in enhancing company performance. Therefore, in this study, the author expects the following relationship:

H3: There is a positive relationship between Green Human Resource Management and Sustainability Organizational Performance."

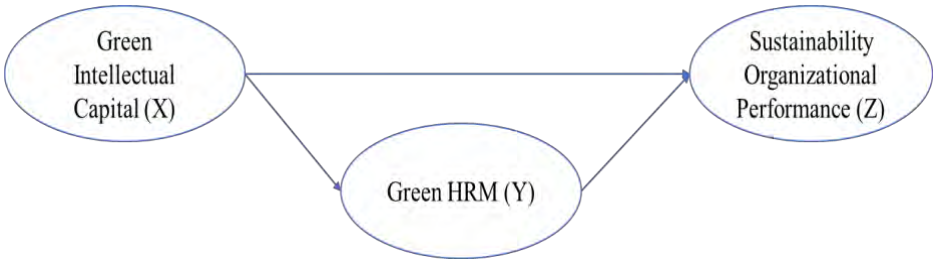


Figure 2. Conseptual Models

Population and Sample

The population in this study consisted of 75 Manufacturing Companies in the Karawang Industrial Area, Indonesia. The target respondents were Managers or Supervisors in these companies. Data collection was conducted through a survey distributed via email to the respondents. Data collection took place from March to May 2023.

Measurement

To measure Green Intellectual Capital, a scale adapted from Hussinki et al. (2017) was used, consisting of 7 dimensions with 22 indicators. Respondents were asked to rate their agreement level with each indicator using a 5-point Likert scale.

To measure Green Human Resource Management, indicators adapted from Hussinki et al. (2017) were used, consisting of 10 dimensions with 27 indicators. Respondents were asked to rate their agreement level with 27 statements using a 5-point Likert scale.

Sustainability Organizational Performance consisted of two dimensions: market performance and innovation performance, also adapted from Hussinki et al. (2017). Respondents were asked to compare their company's position with other companies in the same sector, ranging from very poor (1) to very good (5). Market performance was assessed based on net sales growth and profitability, while innovation performance was assessed based on three indicators: products, marketing, and business models.

Data Collection and Analysis

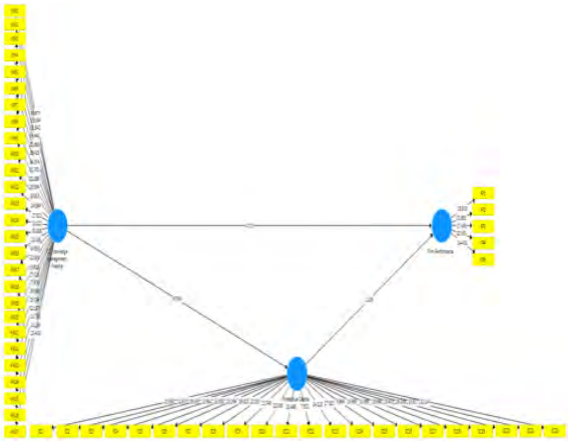
The analysis technique used in this study was partial least squares (PLS-SEM) to estimate the structural equation model (Chin, 1998; Hair et al., 2017). PLS-SEM has been proven to be useful for analyzing models that are relatively complex with a relatively small sample size (Reinartz et al., 2009).

4. RESULTS

4.1. Data Analysis Results

Outer Model Evaluation

In this stage, testing was conducted using SmartPLS version 3.0. The validity testing performed was construct validity. Construct validity testing can be done by examining the strength of the correlation between constructs and the indicators that form the constructs, as well as their weak relationship with other constructs. Construct validity consists of two parts: convergent validity and discriminant validity.



a. Validity Testing

Convergent validity testing of each construct's indicators, according to Chin in Ghozali & Latan (2015), states that an indicator is considered valid if its value is greater than 0.5.

Convergent Validity

Convergent validity can be assessed through the loading factor of each construct's indicators. The rule of thumb used to evaluate convergent validity is that the loading factor should be greater than 0.5. Based on the conducted testing, it is found that all loading factor values are above 0.5, indicating that all indicators in this study are valid.

Based on the calculations performed by the PLS Algorithm for the indicators, the values of AVE and squared AVE are obtained as shown in Table 4.1.

Table 4.1 Results of Average Variance Extracted (AVE) Values

Variabel	*Average Variance Extracted* (AVE)	Keterangan
Green Intelectual Capital	0.624	Valid
Green Human Resource Management	0.672	Valid
Sustainability Organizational Performance	0.741	Valid

Source: Data Processing Results from SmartPLS (2023)

From Table 4.1, it can be observed that the AVE values for all variables meet the required criterion, which is above 0.5. The lowest AVE value is found in the Intellectual Capital variable with a value of 0.624. Considering the loading factor values and AVE values in Table 4.1, it can be concluded that the data from this study meet the requirements for convergent validity testing.

Discriminant Validity

Another method to assess discriminant validity is by comparing the cross-loading values for each construct with the correlations between constructs in the model. The model shows discriminant validity.From the conducted testing, it is indicated that the cross-loading values of each item on its construct are higher than the loading values with other constructs. Based on these results, it can be concluded that there are no issues with discriminant validity.

b. Reliability Testing

Composite Reliability (CR)

After testing construct validity, the next step is to assess the reliability of the constructs, measured by two criteria: Composite Reliability (CR) and Cronbach's Alpha (CA) of the indicator block measuring the construct. CR is used to indicate good reliability. A construct is considered reliable if the composite reliability value is >0.7.

Table 4.2 *Composite Reliability* (CR)

Variabel	*Composite Reliability*	Keterangan
Green Intelectual Capital	0.973	*Reliable*
Green Human Resource Management	0.982	*Reliable*
Sustainability Organizational Performance	0.935	*Reliable*

Sumber: Olah data Output SmartPLS

Based on Table 4.2, the results of the composite reliability testing show values >0.7, indicating that each instrument's values are reliable.

Cronbach's Alpha

A construct is considered reliable if both the composite reliability value and Cronbach's Alpha value are >0.6.

Table 4.3 Cronbach's Alpha

Variabel	*Cronbach's Alpha*	Keterangan
Green Intelectual Capital	0.971	*Reliable*
Green Human Resource Management	0.981	*Reliable*
Sustainability Organizational Performance	0.913	*Reliable*

Source: SmartPLS Output Data Processing

Based on Table 4.3, the Cronbach's Alpha testing results show values> 0.7, indicating that each instrument's values are reliable.

Evaluasi Struktural Model (Inner Model)

After evaluating the model and confirming that each construct meets the requirements of Convergent Validity, Discriminant Validity, and Composite Reliability, the next step is to evaluate the structural model, which includes testing path coefficients and R2.

The inner model (inner relationship, structural model, and substantive theory) depicts the relationships between latent variables based on the substantive theory. The structural model is evaluated using R-square for dependent constructs and the Stone-Geiser Q-square test for

predictive relevance. The R2 value can be used to assess the influence of specific independent latent variables on dependent latent variables in terms of substantive effects (Ghozali, 2014). A higher R2 value indicates a greater ability of the independent latent variables to explain the dependent latent variables. The R2 results of 0.67, 0.33, and 0.19 indicate that the model is "good," "moderate," and "weak" (Ghozali, 2014).

Table 4.4 *R*-Squared Coefficients

	R Square
Green Human Resource Management	0.477
Sustainability Organizational Performance	0.722

Source: SmartPLS Output Data Processing

Based on Table 4.4, the R-Square value for the Green Human Resource Management variable is 0.477, which means that 47.7% of the variation or changes in Green Human Resource Management are influenced by Green Intellectual Capital, while the remaining 52.3% is explained by other factors. Based on this, the R2 calculation indicates a moderate level. Based on Table 4.4, the R-Square value for the Sustainability Organizational Performance variable is 0.722, which means that 72.2% of the variation or changes in Sustainability Organizational Performance are influenced by Green Intellectual Capital and Green Human Resource Management, while the remaining 27.8% is explained by other factors. Based on this, the R2 calculation indicates a good level.

In addition to looking at the R-square values, the model is also evaluated by examining the Q-square for predictive relevance in the constructive model. Q-square measures how well the observed values are produced by the model and its parameter estimations. The Q2 value ranges from 0 to 1, where a value closer to 1 indicates a better model. This Q2 value is equivalent to the total determination coefficient in path analysis. A Q2 value > 0 indicates that the model has predictive relevance, while a Q2 value ≤ 0 indicates that the model lacks predictive relevance.

The calculation of Q2 for the total Sustainability Organizational Performance variable is performed using the formula:

$Q^2 = 1 – [(1- R^2) * (1- R^2)\}$

$Q^2 = 1 – [(1-477)* (1-722)]$

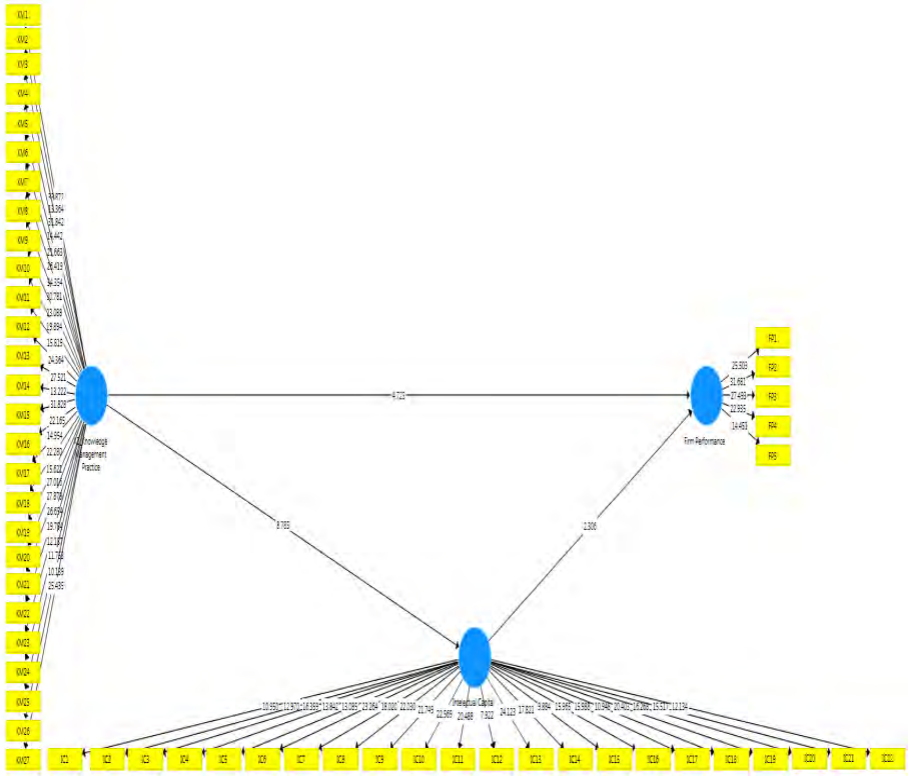
$Q^2 = 1-0.145$

$Q^2 = 0.855$

This value indicates that 85.5% of the information contained in the data can be explained by the model, while 14.5% is explained by other variables (not included in the model) and error components.

Bootstrapping Results

In PLS, testing each relationship is done by using simulation with the bootstrapping method on the sample. This testing aims to minimize the issue of non-normality in the research. The results of the bootstrapping method from PLS are as follows:



Gambar 4.1 *Path Diagram*

Source: SmartPLS Output Data Processing

Meanwhile, the calculation results can be seen based on the direct effects as shown below.

Direct Effects Analysis

Table 4.5 Direct Effects

	T Statistics (|O/STDEV|)	P Values
Green Intelectual Capital -> Sustainability Organizational Performance	4.723	0.000
Green Intelectual Capital -> Green Human Resource Management	8.785	0.000
Green Human Resource Management -> Sustainability Organizational Performance	2.306	0.022

Source: SmartPLS output data analysis

Based on table 4.5, it shows the results of PLS calculations indicating the direct influence between variables. It is said to have a direct influence if the T Statistics value > 1.96, and it is said to have no influence if T Statistics < 1.96. Based on table 4.7, the following can be stated:

1. The Green Intellectual Capital variable significantly influences the Sustainability Organizational Performance variable with a T Statistics value of 4.723 > 1.96.
2. The Green Intellectual Capital variable significantly influences the Green Human Resource Management variable with a T Statistics value of 2.306 > 1.96.

3. The Green Human Resource Management variable significantly influences the Sustainability Organizational Performance variable with a T Statistics value of 8.785 > 1.96.

4.2. Hypothesis Testing

Hypothesis testing is done by examining the probability values and t-statistics. For the probability value, the t-table value for a 5% alpha level is 1.96. Therefore, the acceptance criterion for the hypothesis is when the t-statistic > t-table. This testing is intended to test the following three hypotheses:

Hypothesis 1:

H1: There is a positive relationship between Green Intellectual Capital and Sustainability Organizational Performance.

Based on table 4.7, with a T-statistics value of 4.723, which is > 1.96, H1 is accepted. This means that Green Intellectual Capital has a positive and significant influence on Sustainability Organizational Performance. In other words, changes in Green Intellectual Capital have a direct impact on changes in Sustainability Organizational Performance, or in other words, if Green Intellectual Capital is performing well, there will be an increase in Sustainability Organizational Performance, and statistically, it has a significant influence. Based on the data analysis using SmartPLS version 3.0, it is known that the path coefficient value of Green Intellectual Capital to Sustainability Organizational Performance is 0.605, which means that Green Intellectual Capital has a positive relationship with Sustainability Organizational Performance with a moderate degree of relationship strength.

Hypothesis 2:

H2: There is a positive relationship between Green Intellectual Capital and Green Human Resource Management.

Based on table 4.7, with a T-statistics value of 2.306, which is > 1.96, H2 is accepted. This means that Green Intellectual Capital has a positive and significant influence on Green Human Resource Management. In other words, changes in Green Intellectual Capital have a direct impact on changes in Green Human Resource Management, or in other words, if Green Intellectual Capital is performing well, there will be an increase in Green Human Resource Management, and statistically, it has a significant influence. Based on the data analysis using SmartPLS version 3.0, it is known that the path coefficient value of Green Intellectual Capital to Green Human Resource Management is 0.311, which means that Green Intellectual Capital has a positive relationship with Green Human Resource Management with a strong degree of relationship strength.

Hypothesis 3:

H3: There is a positive relationship between Green Human Resource Management and Sustainability Organizational Performance.

Based on Table 4.7, with a T-statistics value of 8.785, which is greater than 1.96, H3 is accepted. This indicates that Green Human Resource Management has a positive and significant influence on Sustainability Organizational Performance. It means that changes in Green Human Resource Management have a positive impact on changes in Sustainability Organizational Performance. In other words, if Green Human Resource Management is implemented effectively, there will be an increase in Sustainability Organizational Performance, and this influence is statistically significant. The data analysis using SmartPLS version 3.0 reveals that the path coefficient value of Sustainability Organizational Performance on Intellectual Capital is 0.691, indicating a positive

relationship between Green Human Resource Management and Sustainability Organizational Performance with a strong level of association.

5. Discussion of Research Findings

a. Influence of Green Intellectual Capital on Sustainability Organizational Performance

Based on the calculation results, a T-statistics value of 4.723 is obtained, which is greater than 1.96, and a significance value of 0.000 below 0.05. Therefore, H1 is accepted, indicating that Green Intellectual Capital has a positive and significant influence on Sustainability Organizational Performance. This means that changes in Green Intellectual Capital have a positive impact on changes in Sustainability Organizational Performance. In other words, an increase in Green Intellectual Capital will lead to an increase in Sustainability Organizational Performance, and this influence is statistically significant. Based on the data analysis using SmartPLS version 3.0, the path coefficient value of Green Intellectual Capital on Sustainability Organizational Performance is 0.605, indicating a positive relationship between Green Intellectual Capital and Sustainability Organizational Performance.

b. Influence of Green Intellectual Capital on Green Human Resource Management

Based on the calculation results, a T-statistics value of 2.305 is obtained, which is greater than 1.96, and a significance value of 0.022 below 0.05. Therefore, H2 is accepted, indicating that Green Intellectual Capital has a positive and significant influence on Green Human Resource Management. This means that changes in Green Intellectual Capital have a positive impact on changes in Green Human Resource Management. In other words, an increase in Green Intellectual Capital will lead to an increase in the level of Green Human Resource Management, and this influence is statistically significant. Based on the data analysis using SmartPLS version 3.0, the path coefficient value of Green Intellectual Capital on Green Human Resource Management is 0.311, indicating a positive relationship between Green Intellectual Capital and Green Human Resource Management.

c. Influence of Green Human Resource Management on Sustainability Organizational Performance

Based on the calculation results, a T-statistics value of 8.785 is obtained, which is greater than 1.96, and a significance value of 0.000 below 0.05. Therefore, H3 is accepted, indicating that Green Human Resource Management has a positive and significant influence on Sustainability Organizational Performance. This means that changes in Green Human Resource Management have a positive impact on changes in Sustainability Organizational Performance. In other words, an increase in Green Human Resource Management will lead to an increase in Sustainability Organizational Performance, and this influence is statistically significant. Based on the data analysis using SmartPLS version 3.0, the path coefficient value of Green Human Resource Management on Sustainability Organizational Performance is 0.691, indicating a positive relationship between Green Human Resource Management and Sustainability Organizational Performance.

6. DISCUSSION and CONCLUSION

This research aimed to understand the relationship between Green Intellectual Capital, Green Human Resource Management, and Sustainability Organizational Performance in the manufacturing industry. From the two factors studied, it is evident that both have an influence on Sustainability Organizational Performance. The model used in this study was proven to be good based on the Q2 value of 85.5%. Green Intellectual Capital and Green Human Resource Management were found to have a 72.2% influence on Sustainability Organizational Performance, meaning that both variables are substantial in explaining Sustainability

Organizational Performance or, in this case, the performance of the manufacturing industry in the Karawang Industrial Zone, West Java, Indonesia. These findings contribute significantly to improving the performance of the manufacturing industry. The results of this study can be used as a further step for manufacturing industries to enhance Sustainability Organizational Performance through the variables examined in this research.

These findings support the research by Malik et al. (2020), which found that companies with high levels of GIC and GHRM tend to outperform companies with lower overall levels of GIC and GHRM. Interestingly, this study also showed that companies with high GIC and GHRM characteristics but low utilization of GHRM can match the innovation performance of companies with high levels of GIC and GHRM. Similarly, Iqbal et al. (2019) found that the GHRM process directly and indirectly affects Sustainability Organizational Performance through innovation and GIC. Therefore, these findings contribute to theoretical advancements in enriching knowledge about Green Human Resource Management. This research adds to the body of knowledge on manufacturing industries, especially in Indonesia, where there is limited research on the influence of Green Intellectual Capital and Green Human Resource Management. Thus, this study contributes to the business literature in the manufacturing industry.

Green Intellectual Capital and Green Human Resource Management are essential factors that can enhance Sustainability Organizational Performance. Both factors have been proven to have an impact on improving the Sustainability Organizational Performance of the manufacturing industry in Indonesia. Therefore, these two factors deserve more attention from executives and managers to be implemented in companies, as they can contribute positively to enhancing Sustainability Organizational Performance. The model used in this research has shown good predictability. From the hypothesis testing results, it was found that the factor with the most dominant influence on Sustainability Organizational Performance is Green Human Resource Management. Based on these findings, managerial implications for improvement are that the Green Intellectual Capital process itself needs to be enhanced up to the level of Green Human Resource Management to optimize the improvement of Sustainability Organizational Performance. This implies that there are still areas that can be improved or enhanced to contribute to the future improvement of Sustainability Organizational Performance. This research provides original contributions in empirically proving the significance of Green Intellectual Capital and Green Human Resource Management in the manufacturing industry in Indonesia.

The results of this study have practical implications as a guide for manufacturing industries in Indonesia to improve their performance by considering Green Intellectual Capital and Green Human Resource Management factors to enhance their Sustainability Organizational Performance

Some limitations of this study are, first, the research scope only sampled manufacturing industries located in the Karawang Industrial Area in West Java province. Therefore, further research is needed to examine this topic in order to provide a comprehensive overview of the manufacturing industry in Indonesia. Second, the phenomenon of Green Human Resource Management itself has not been widely implemented by manufacturing industries in Indonesia, thus requiring further research to explore this topic in the future.

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