

# Integration Green Supply Chain Management and Environmental Consciousness: Direct Effects Sustainability Performance

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**Abstract** Purpose this research to determine the effect of the nine dimensional constructs of GSCM and Environmental Consciousness on sustainability performance. This study is a quantitative study that has a sample of 483 manufacturing companies in Indonesia. The data used are primary data obtained by distributing questionnaires to the middle up managers of the company. From the research results, it is known that Green Purchasing, Green Marketing, Green Manufacturing and Green Design as four constructs of GSCM and Environmental Consciousness have an influence on the company's sustainability performance. Eco-design, Intern Environmental Management, Environmental Education, Customer Cooperation, Green Information System haven't effect to sustainability performance. This research able to be a guide for practitioners in supply chain field and also company management in an effort to company's achievement of sustainability performance. This study has not discussed about integration information systems and the risks that may arise from environmentally friendly supply chain processes.

**Keywords** — Green Supply Chain Management, Environmental Consciousness, Sustainability Performance

## I. INTRODUCTION

Sustainability Performance of a company is a process that develops from normative traditions, ethical roots, and stakeholder attitudes that are implemented in company processes (Arceiz et al., 2019). This change process aims to enable the company to survive and thrive in various possible conditions, including the threatening risks from the development process. Aspects of sustainability performance include the company's financial, social and environmental conditions. In achieving its sustainability performance, companies must also pay attention to the environment.

Sustainability performance for companies in Indonesia is an important point that needs to be observed (CRMS Indonesia, 2022). The factors that influence the focus on sustainability performance in Indonesia stem from changes in political, social, and macro conditions (natural resources, climate change, supply chain instability, and population growth). These factors are the background of this research to look at Green Supply Chain Management as a supply chain process to support company's sustainability performance. Supply chain instability and focus on the environment are the focus of research in looking at problems to see their effect to sustainability performance.

Green supply chain management is integrated process of the dimensional constructs that support it (Rizki and Sudiby, 2022). The uniqueness of a company that has a strategy of carrying out an environmentally friendly supply chain strategy is unique for the company and becomes an advantage in the competition (Gerald, 2020) Research conducted by Acquah et al., (2020) uses 9 dimensional constructs in measuring GSCM, namely Green Purchasing (GP), Green Marketing (MKT), Green Manufacturing (GMF), Eco Design (ECO), Green Distribution (GD), Environmental education (EDU), Internal Environment Management (IEM), Cooperation with Customers (CUST), Green Information Systems (GIS).

Environmental Consciousness owned by the company as a producer needs to be strengthened as an embodiment of an environmentally friendly production process. Kautis et al., (2020) stated that environmental awareness encourages the implementation of environmentally friendly work processes and minimizes risks. This research was organized on Indonesia manufacturing company. The environmental care carried out by manufacturing companies in Indonesia is due to the green initiatives owned by these companies. This study purpose to determine effect of GSCM and Environmental Consciousness to sustainability performance.

## II. LITERATURE REVIEW

### A. Stakeholders Theory

Stakeholders in a company, both internal and external, have an important role in the direction of the company's operations (Freeman, 1994). Employees and company management have a role in the implementation of GSCM in environmental education (EDU) and Internal Environmental Management (IEM). For shareholders and the government, the implementation of GSCM in Indonesian manufacturing companies is something that needs to be considered in order to support the green economy of Indonesia. Customers have an important role as stakeholders from the external side.

Stakeholders expect improved and sustainable company performance. The importance of this research is to find out whether the previous research by Acquah et al., (2021), Inman & Green (2018), Carvalho et al., (2020), Namagembe et al., (2019), Cankaya & Sezen (2019), Choudary and Sangwan (2019), Zhu et al., (2008), Carter et al., (2000), Rao and Holt (2005), Gao et al. (2009), Singh and Pandey (2012), Sarkis (2003), Kung et al. (2012), Kirchoff et al., (2016), Green et al., (2012), Chan et al. (2012), Sammalisto and Brorson (2008), who found effect of GSCM to sustainability performance, would be similar to conditions in manufacturing companies in Indonesia.

### B. Previous Research

Sustainability performance and issues regarding the green economy are increasingly being improved by companies, especially the manufacturing industry, thereby changing the company's paradigm, especially in its operational processes (Afum et al., 2020). Measurement of the company's sustainability performance is an important point in translating the company's achievements. Efforts made by the company in improvising to achieve financial performance, social performance, and environmental performance are increasingly being improved.

The paradigm that is changed by the company from its operational process is by changing the supply chain process to context of green supply chain management. GSCM development process is aimed at achieving financial performance, social performance, and environmental performance simultaneously leading to sustainability performance (Cankaya and Sezen, 2019).

Acquah et al., (2021), conducted research on manufacturing companies to determine the effect of GSCM on sustainability performance. The results of his research show that GSCM has an effect on sustainability performance. Measurements were carried out Acquah et al., (2021) using 9 dimensional constructs, namely Green Purchasing (GP), Green Marketing (MKT), Green Manufacturing (GMF), Eco Design (ECO), Green Distribution (GD), Environmental education (EDU), Internal Environment Management (IEM), Cooperation with Customers (CUST), Green Information Systems (GIS).

Chaudhry et al. (2016) conducting research with the main objective of analyzing the impact of company's environmental consciousness and impact of green intellectual capital on sustainability performance. His research was consist on 480 manufacturing companies in Pakistan, and found that environmental consciousness has an effect on sustainability performance.

### C. Hypothesis Development

#### The Effect of GSCM on Sustainability Performance

Risk is Research conducted by Acquah et al., (2021) using 9 dimensional constructs which in this study will be used as independent variables. The aim is to find out which dimension constructs owned by GSCM have an influence on sustainability performance. The analysis of the GSCM construct integration based researched by Carvalho et al., (2020), Namagembe et al., (2019), Cankaya & Sezen (2019), Choudary and Sangwan (2019), Zhu et al., (2008), Carter et al., (2000), Rao and Holt (2005), Gao et al. (2009), Singh and Pandey (2012), Sarkis (2003), Kung et al. (2012), Kirchoff et al., (2016), Green et al., (2012), Chan et al. (2012), Sammalisto and Brorson (2008).

The construct of the GSCM dimension integration in the previous study was carried out separately, not completely 9 dimensions. This study combines the 9 aspects of the construct to determine its effect to sustainability performance. From the research that has been done previously, this research hypothesizes as follows:

The effect of Green Purchasing (GP) on sustainability performance has been previously carried out by Zhu et al., (2008). The results found that initial purchasing process is the thing that initiates the integration of GSCM which affects sustainability performance. Based on this research, it is hypothesized:

*H1: There is Positive and Significant Effect of Green Purchasing on Sustainability Performance*

The influence Green Manufacturing (GMF) to sustainability performance has been carried out by Carvalho et al., (2020), Namagembe et al., (2019) which shows that there is a positive and significant effect Green Manufacturing (GMF) to sustainability performance. Based on this, it is hypothesized:

*H2: There is Positive and Significant Effect Green Manufacturing (GMF) on Sustainability Performance*

The influence Green Marketing (MKT) to sustainability performance has been carried out by , Zhu et al., (2008), Carter et al., (2000), Rao and Holt (2005), who found that was positive and significant effect Green Marketing (MKT) to sustainability performance. Based on this research, it is hypothesized:

*H3: There is Positive and Significant Effect Green Marketing (MKT) on Sustainability Performance.*

The influence Green Distribution (GD) on sustainability performance has been carried out by Carvalho et al., (2020), Namagembe et al., (2019), Cankaya & Sezen (2019), Choudary and Sangwan (2019), Zhu et al., (2008) who found that there was a positive and also significant effect Green Distribution (GD) to sustainability performance. Distribution process is an important part of the GSCM integration where production raw materials and products go through a distribution process to enter and leave the factory. Based on this research, it is hypothesized:

*H4: There is Positive and Significant Green Distribution (GD) Effect on Sustainability Performance.*

The influence of Eco Design (ECO) , on sustainability performance has been carried out by Carvalho et al., (2020), Namagembe et al., (2019) , Zhu et al., (2008) which Carter et al., (2000) shows positive and significant effect Eco Design (ECO) on sustainability performance. Based on this research, it is hypothesized:

*H5: There is Positive and Significant Effect Eco Design (ECO) on Sustainability Performance.*

The influence Internal Environment Management (IEM) to sustainability performance has been carried out by, Zhu et al., (2008), Carter et al., (2000), Rao and Holt (2005), who found influence Internal Environment Management (IEM) to sustainability performance in a positive and significant way. Improvements from management in Indonesia are regulated in POJK, the aim is to understand and report on sustainability performance in companies. Based on this research, it is hypothesized:

*H6: There is Positive and Significant Effect Internal Environment Management (IEM) on Sustainability Performance.*

The influence Environmental education (EDU) to sustainability performance has been carried out Namagembe et al., (2019), Cankaya & Sezen (2019), Choudary and Sangwan (2019), Zhu et al., (2008) who found that there was positive and significant effect Environmental education (EDU) on sustainability performance. Based on this research, it is hypothesized:

*H7: There is Positive and Significant Effect of Internal Environmental Education (EDU) on Sustainability Performance.*

The influence Cooperation with Customer (CUST) on sustainability performance has been carried out by, Zhu et al., (2008), Carter et al., (2000), Rao and Holt (2005), who found effect Cooperation with Customer (CUST), to sustainability performance in positive and significant way. Cooperation with customers is part of the external side of the GSCM process that links the existence of stakeholders, namely customers. Based on this research, it is hypothesized:

*H8: There is Positive and Significant Effect Customer Cooperation (CUST) to Sustainability Performance*

The effect of Green Information Systems (GIS) on sustainability performance has been carried out by Cankaya & Sezen (2019), Choudary and Sangwan (2019), Zhu et al., (2008), Carter et al., (2000), Rao and Holt (2005), Gao et al. (2009), Singh and Pandey (2012) who found a positive and significant effect of Green Information Systems (GIS) on sustainability performance. Based on this research, it is hypothesized:

*H9: There is Positive and Significant Effect Green Information Systems (GIS) to Sustainability Performance*

### **The Effect of Environmental Consciousness on Sustainability Performance**

Environmental consciousness that his research conducted Chaudhry et al. (2016) found positive and significant influence to environmental consciousness on financial performance which is part of a company's sustainability performance. The environmental consciousness of manufacturing companies in Indonesia is an aspect of the green

initiative which is then implemented with an environmentally friendly production process. Efforts to achieve sustainability performance by owning it. Based on previous research, this research hypothesizes:

*H10: There is Positive and Significant Effect Environmental consciousness to Sustainability Performance*

### III. METHOD

#### A. Research Design

Research method is quantitative. The sample of this research is 483 manufacturing companies in Indonesia, data collected by distributing questionnaires to middle up managers in manufacturing companies. Respondents who are allowed to fill in have qualifications of understanding the supply chain process and also environmentally friendly production processes in the company where they work. The research sample consisted of 64 companies listed on IDX and 419 not listed on IDX.

#### B. Operational Definition of Variables and Measurement Independent and Dependent Variable

In this research, nine GSCM dimensional constructs from the research Acquah et al., (2021), will be used as independent variables. Environmental consciousness in this study is the tenth independent variable which has eight measurement indicators. Sustainability performance in this study has three dimensions such as financial, social, and environmental performance. The following table operational research variables:

**Table 1. Operational Variable Measurement**

Independent Variable	
<i>Green Purchasing (GP)</i> Cousins <i>et al.</i> (2019); Namagembe <i>et al.</i> (2018)	<ol style="list-style-type: none"> <li>1. Purchase raw materials labeled as environmentally friendly products.</li> <li>2. Cooperation with suppliers for environmentally friendly practices.</li> <li>3. Conducting assessments to suppliers</li> <li>4. ISO 14000 certified supplier.</li> <li>5. Confirmation of the second level supplier's eco-friendly practices.</li> <li>6. Provide environmentally friendly product design specifications to suppliers.</li> </ol>
<i>Green Manufacturing (GMF)</i> Green <i>et al.</i> (2018); Cankaya and Sezen (2018)	<ol style="list-style-type: none"> <li>1. Reduce noise pollution in the production process.</li> <li>2. Substitution of hazardous and polluting production materials</li> <li>3. Controlling emissions and exhaust filters</li> <li>4. Production planning and control is focused on raw material efficiency</li> <li>5. Production process that focuses on reducing energy consumption.</li> </ol>
<i>Green Marketing (MKT)</i> , Acquah <i>et al.</i> (2020) Cankaya and Sezen (2018), by Carvalho, Stefanelli, and Oliveira (2020), Luthra <i>et al.</i> (2016),	<ol style="list-style-type: none"> <li>1. Provide regular voluntary information to customers and agencies about management environment</li> <li>2. Sponsor environmental events/ collaborations with ecological organizations</li> <li>3. friendly arguments in marketing</li> <li>4. Regular website updates on environmental issues</li> <li>5. Eco-friendly label on shipping packaging.</li> <li>6. Considering that Eco Products increase consumer buying interest</li> </ol>
<i>Green Distribution (GD)</i> Cankaya and Sezen (2018), Inman and Green ( 2018 ), Acquah <i>et al.</i> , ( 2020	<ol style="list-style-type: none"> <li>1. Recyclable packaging in the process of shipping.</li> <li>2. Selection of transportation methods that are more environmentally friendly.</li> <li>3. Efficiency of cargo delivery of goods.</li> <li>4. Routing system to minimize travel distance</li> </ol>
<i>Eco Design (ECO)</i> Cankaya and Sezen (2018), Acquah <i>et al.</i> (2020) , Inman and Green (2018) , Namagembe <i>et al.</i> (2018)	<ol style="list-style-type: none"> <li>1. Designing energy efficient products.</li> <li>2. Recyclable product design.</li> <li>3. Product design that is safe from hazardous materials</li> </ol>
<i>Internal Environment Management (IEM)</i> , Cankaya and Sezen (2018), Vanalle	<ol style="list-style-type: none"> <li>1. Commitment about Green Supply Chain.</li> <li>2. Manager support about Green Supply Chain Management.</li> <li>3. Cooperation between departments to environmental improvement.</li> <li>4. Environmental Quality management.</li> </ol>

<i>et al. (2017), Schmidt et al. (2017), Kirchoff et al. (2016),</i>	5. Audit Environmental and compliance program.
<i>Environmental Education (EDU), Acquah et al. (2020), Cousins et al. (2019), Cankaya and Sezen (2018)</i>	<ol style="list-style-type: none"> <li>1. Environmental seminar for executives</li> <li>2. <i>Environmental training programs for managers that lead to environmentally friendly strategies</i></li> <li>3. Participation in government-subsidized environmental programs</li> </ol>
<i>Cooperation with Customer (CUST) Acquah et al. (2020), Cousins et al. (2019), Cankaya and Sezen (2018)</i>	<ol style="list-style-type: none"> <li>1. Cooperation customers to design environmentally products friendly.</li> <li>2. Cooperation customers to more environmentally production friendly.</li> <li>3. Cooperation customers to environmentally friendly packaging.</li> <li>4. Cooperation with customers to minimize the mileage of goods delivery.</li> </ol>
<i>Green Information Systems (GIS) Acquah et al., (2020) Weeratunge and Herath (2017)</i>	<ol style="list-style-type: none"> <li>1. Tracking information environmental (such as energy used, toxicity, water used, and air pollution.)</li> <li>2. Using information technology for online distribution of information</li> </ol>
<i>Environmental Consciousness (EC) (Kautis et al. (2020)</i>	<ol style="list-style-type: none"> <li>1. Assessment of global environmental conditions</li> <li>2. Concern about environment and does not about price or job situation</li> <li>3. Take action to improve water quality</li> <li>4. The extent to their respondents perceive themselves to be sounding about environmental.</li> <li>5. Specific environmental knowledge indexes</li> <li>6. It's so difficult for someone like me able to doing anything for environment</li> <li>7. Willingness to spend on clean water treatment Recycling rate index (glass, paper, plastic)</li> <li>8. Activism index (petitions to environmental issues, taking part in doing volunteer work, demonstrations, collaborating in their organizations, making donations)</li> </ol>

Dependent Variable		
Sustainability Performance Shahzad (2020), and Acquah et al. (2020)	<i>Environmental performance (ENP)</i>	<ol style="list-style-type: none"> <li>1. Reduction their air emissions.</li> <li>2. Reduction their liquid waste.</li> <li>3. Reduction solid waste.</li> <li>4. Reducing the consumption from hazardous materials.</li> <li>5. Decrease frequency environmental accidents.</li> <li>6. Modification of environmental situation within the company.</li> </ol>
	<i>Economic Performance (ECP)</i>	<ol style="list-style-type: none"> <li>1. Reduction in the cost of purchasing materials.</li> <li>2. Reduction of costs to energy consumption.</li> <li>3. Reduction of costs to waste treatment.</li> <li>4. Reduction of waste of disposal costs.</li> <li>5. Decreasing fines for environmental damage.</li> </ol>
	<i>Social Performance (SOCP)</i>	<ol style="list-style-type: none"> <li>1. Improved customer satisfaction</li> <li>2. Improved image in eyes of customers</li> <li>3. Increased investment for social projects (culture, education, sports)</li> <li>4. Improved relationships with stakeholders, seems like non-governmental organizations</li> </ol>

		(NGOs) and also community activity 5. Awareness raising and protection of claims and rights of communities served 6. Improved employee training and also education 7. Improved employee health and also safety 8. Improved overall stakeholder welfare
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Source: Developed Rizki and Sudibyo (2022)

C. Analysis Data

This research is a quantitative research, which analysis the data with multiple linear regression. The software used as a testing tool is SMART PLS #. The equation of this research model is as follows:

$$SP_{it} = a + GP_{it} + GMF_{it} + MKT_{it} + GD_{it} + ECO_{it} + IEM_{it} + EDU_{it} + CUST_{it} + GIS_{it} + IEC_{it} + e_t$$

Note: GP= Green Purchasing, GMF= Green Manufacturing, MKT= Green Marketing, GD= Green Distribution, ECO= Eco Design, IEM= Internal Environment Management, EDU= Environmental education, CUST= Cooperation with Customer, GIS= Green Information Systems, EC= Environmental Consciousness, SP= Sustainability Performance.

IV. RESULT AND DISCUSSION

A. Result

Based on results. Of the 483 research data that were processed, the resulting table.2 statistical interpretation of the data as follows:

Table 2. Interpretation of Results

$$SP_{it} = a + GP_{it} + GMF_{it} + MKT_{it} + GD_{it} + ECO_{it} + IEM_{it} + EDU_{it} + CUST_{it} + GIS_{it} + IEC_{it} + e_t$$

Description	Coefficiency	Significance
GP -> SP	0.109	0.008 *
GMF -> SP	0.207	0.000 *
MKT -> SP	0.176	0.001 *
GD -> SP	0.090	0.037 *
ECO -> SP	0.051	0.218
IEM -> SP	0.054	0.232
EDU -> SP	0.040	0.323
CUST -> SP	-0.011	0.804
GIS -> SP	0.065	0.144
EC -> SP	0.255	0.000 *
<b>R Square</b>		<b>0.900</b>
<b>Adjusted R Square</b>		<b>0.898</b>
<b>SRMR</b>		<b>0.035**</b>

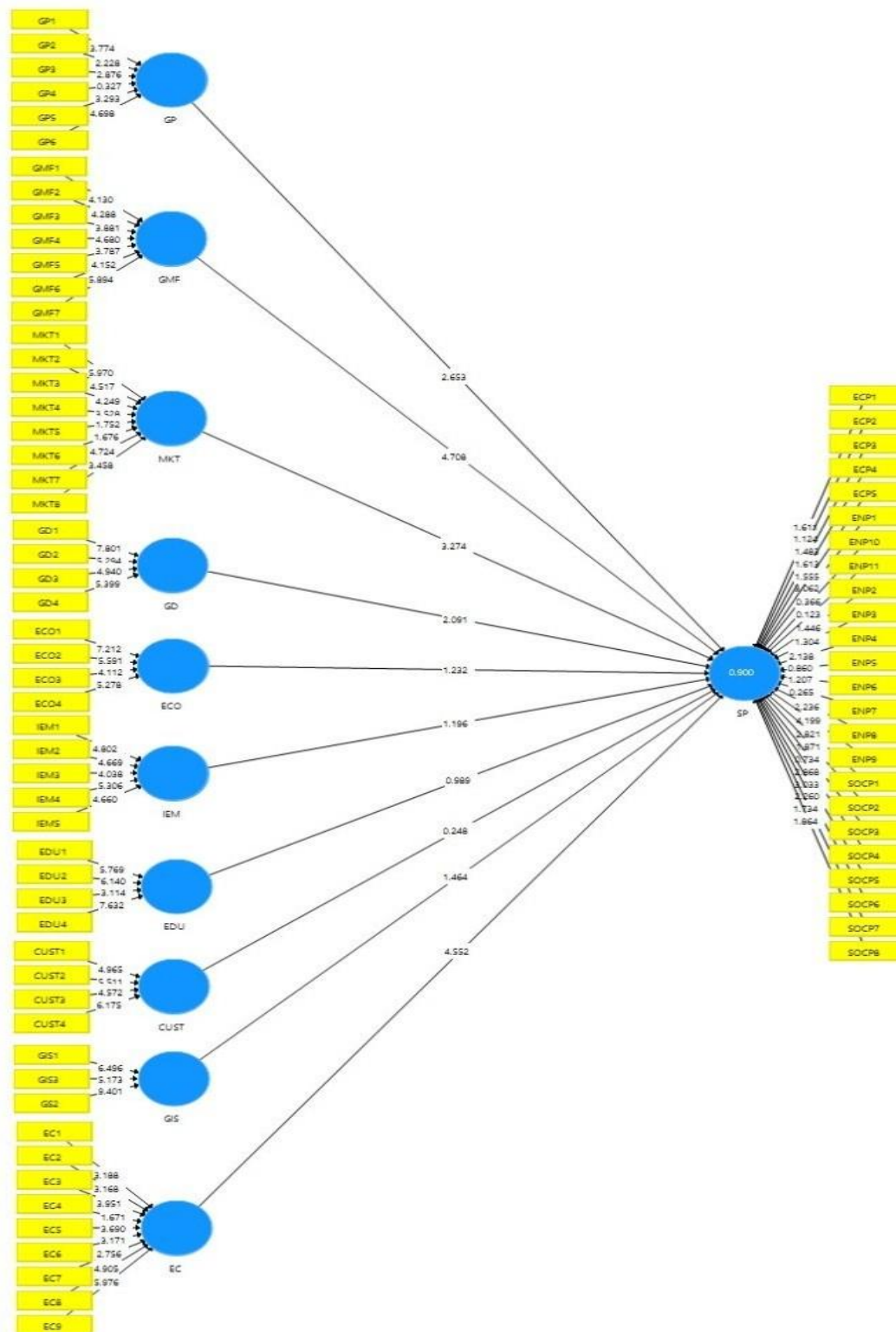
Source: SMART PLS 3

Note: GP= Green Purchasing, GMF= Green Manufacturing, MKT= Green Marketing, GD= Green Distribution, ECO= Eco Design, IEM= Internal Environment Management, EDU= Environmental education, CUST= Cooperation with Customer, GIS= Green Information Systems, EC= Environmental Consciousness, SP= Sustainability Performance.



\*\*SRMR < 0.1; \* Significance < 0.05.

Figure 1. Path Analysis Model



Source : SMART PLS 3

Based on table 2, Show that SRMR research value model is  $0.035 < 0.1$ . This value indicates that the research model is a fit model with an average residual standard value of "0". The adjusted R square value of this research model is 0.898 or 89.8%, which means that the sustainability performance variable is influenced by 89.8% by the independents in this study and 10.2% is influenced by other variables not in this study.

In the results of table 2 it is also known that from the ten hypotheses proposed, five variables have a positive and significant effect. The influential variables with a significance value  $< 0.05$  are Green Purchasing (GP), Green Marketing (MKT), Green Manufacturing (GMF), Green Design (GD) and also Environmental Consciousness (EC). Independent variables that have no effect are Internal Environmental Management (IEM), Eco Design (ECO), Cooperation with Customers (CUST), Environmental Education (EDU), Green Information System (GIS).

### **B. Discussion**

Green supply chain management process in Indonesian manufacturing companies starts from green purchasing. The purchasing department when selecting raw material suppliers pays more attention to raw materials labeled as environmentally friendly. This process has a level of accuracy in the field that has not been fully achieved, certain parts of the production process still require materials whose components contain hazards. However, the components of the material containing the hazard are of course in accordance with standards that meet safety for the environment and customers. The results are in accordance with previous research by Cousins et al., (2019) finding the role of purchasing in selecting vendors that support the implementation of GSCM which affects sustainability performance.

The actual conditions of the production process in manufacturing companies in Indonesia have been mostly environmentally friendly. The second variable is the green manufacturing process. The actual conditions of the production process in manufacturing companies in Indonesia have been mostly environmentally friendly. Many processes use environmentally friendly machines so as to minimize and eliminate pollution. In addition to reducing pollution and waste, the use of environmentally friendly machines has reduced the use of energy sources. Alternative energy sources that need to be developed in manufacturing companies in Indonesia in the production process to be more environmentally friendly.

The marketing process is a door for the company for customers to tell that the products they market are the result of environmentally friendly processes. Not only the process, of course the products produced are also safe for customers and environmentally friendly. Manufacturing companies in Indonesia, with medium and large scale, sponsor a lot of environmental events. Communication media used as a means of education and environmental information through websites and social media. For example, Unilever Indonesia has disclosed easy green on its website and environmentally friendly labels on its products. This effort was also carried out by PT Kino Tbk on its food and beverage products that were labeled environmentally friendly.

Respondents acknowledged that promotion with sponsorship of environmental activities has helped increase sales and positive response to the product. The use of statements related to environmental issues and labeling of eco products can increase customer buying interest. Increased buying interest from customers can affect the increase in the company's financial performance.

Green distribution (GD), which was expressed by respondents regarding the condition of manufacturing companies in Indonesia, stated that the increase in online sales distribution to end users has increased distribution channels from warehouse production and distribution centers. Previously the distribution process required a longer level before reaching the end user. This shorter routing of the distribution chain has a better impact on the environment.

The packaging used for the distribution process is widely used from packaging from suppliers that can be reused. In addition to saving costs, this step of reusing packaging also reduces waste from the distribution process. For example, reuse of cardboard boxes, bubble wrap, wooden pallets and plastic from suppliers to be reused for distribution to both DC and end users.

The eco design variable (ECO) from the data obtained in the field shows a different process for each industry. The concept of energy-saving products is widely owned by the automotive industry and also the electronics industry. In other industries such as food and beverage, pharmaceutical, agro-business, and other industries, this concept is not suitable for respondents. The use of hazard goods for the electronics, automotive, and chemical industries still exists, but the levels are appropriate and do not cause residues that can harm the environment as long as they are used properly and responsibly.

The commitment of the company's management to the green concept has changed the company's paradigm. In medium and large size companies, the green concept is the focus of management. In contrast to small companies,



focusing on the green concept is still not a priority. This condition is found in the Internal Environmental Management (IEM) variable.

In small companies, their management priority is still more on company development. Only a few understand and understand the green concept, but without realizing it, their management implements the concept. Example: some management of small companies are more concerned with saving the use of equipment such as paper and electrical energy sources. Habits carried out by management already exist, it's just that it has not been coordinated that it is an environmentally friendly concept.

Environmental education (EDU) responded quite well by the respondents. During the COVID-19 pandemic, various seminars were conducted online. This includes the participation of company managers and employees in seminars related to environmental issues. Training for large companies for sustainability performance and environmentally friendly concepts has been carried out in accordance with the regulations in the POJK. Separation of training between managers and staff needs to be distinguished according to the process or implementation that they can carry out on the daily work carried out.

Collaboration with the government on the issue of environmentally friendly education is carried out by most medium to large companies. Back again to the focus of small companies more on business development and expansion. Indirectly, this environmentally friendly education has an impact or influence on stakeholders from the external side (government, customers, and society).

Analysis on Cooperation with customers (CUST) is carried out by considering environmental concerns from the customer side. Customers who care about the environment will accept the cooperation carried out by the company on the basis of their concern not because of economic interests. The cooperation carried out by the company for the design of environmentally friendly products and production processes that are minimally polluted has been carried out in several industries.

Green Information System (GIS) where information systems are complementary to a series of green supply chain processes from upstream to downstream. Tracking related to production waste, electrical energy and fuel consumed in the production process, as well as pollution is the role of the system. This tracking is periodically carried out by the company's IT department, which is recognized as part of the division's job description. The IT department also supports environmentally friendly processes by sharing information within the company's internal network such as through the company's domain, internal cloud systems.

The role of the integration of nine variables from the GSCM construct needs to be considered in the implementation of an environmentally friendly production process. Not only to achieve environmental performance, but the implementation of the GSCM production process affects the achievement of social performance and financial performance. Simultaneously, the interaction of the GSCM dimension constructs will affect the sustainability performance of manufacturing companies in Indonesia.

Research on environmental consciousness from the producer side has been carried out by Kautis et al. (2020) who found that environmental awareness has positive significant effect to sustainability performance. The results are same as results in this study. If viewed from a paradigm perspective on the development of environmentally friendly production processes, the environmental awareness of producers will certainly support the company's environmental friendly issues. One of the producers' efforts on environmental consciousness is the implementation of integrated GSCM between their constructs.

Furthermore, the company takes environmental awareness actions according to the questions contained in the EC variable. Analysis based on respondent data has shown indicators that support all processes. Environmental consciousness is proven to affect the achievement of sustainability in Indonesia manufacturing companies.

## V. CONCLUSION

This study found that from 483 research samples in the manufacturing industry in Indonesia, it was found that Green Purchasing (GP), Green Marketing (MKT), Green Manufacturing (GMF), Green Design (GD), and also Environmental Consciousness (EC) had an effect on sustainability performance. Independent variables that have no effect are Eco Design (ECO), Environmental Education (EDU), Internal Environmental Management (IEM), Green Information System (GIS), Cooperation with customers (CUST). In an integrated manner, nine GSCM constructs need to be implemented to achieve sustainability performance.

This study has limitations in the data collection process that has not been fully controlled. Collecting data through electronic media that is not guided by researchers can increase the subjectivity of respondents on the question items. This research also has not discussed integrated systems such as environmentally friendly enterprise resource planning. This study has not investigated the risks that may arise in the implementation of GSCM.

This study provides practical implications for company management to pay attention to the purchasing, production, marketing and product design processes in the integration of GSCM implementation. This attention can be adjusted to the size of the indicators in this study. The company's management can also build stronger environmental consciousness in employees so that it is in accordance with company's vision and also mission to achieve sustainability performance.

The government, this research can be a measure of the manufacturing industry's support for the direction of a green economy in Indonesia. The measurements in this study can be used to make regulations that might strengthen the domestic manufacturing industry and domestic production. The results of this study can also be used by the government to protect customers from consuming products that are safe to use and environmentally friendly.

Future research can examine the relationship between GSCM and risk and information systems. Future research can also develop new measures that are adapted to the national context in which the research takes place. The discussion of further research can be related to the theory of constraints from the implementation of GSCM in supporting the achievement of the company's sustainability performance

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