

# The Role Of Green Innovation To Achieve Sustainable Business Performance Of MSMEs In The Covid-19 Pandemic

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## **Abstract.**

*The Covid-19 pandemic has had a major impact on economic growth in Indonesia, one of which is for Micro, Small and Medium Enterprises (MSMEs). Thus, MSMEs need to improve their business performance in a sustainable manner to achieve the desired economic growth, one of which is through the adoption of green innovation. The purpose of this study was to analyze the relationship between the adoption of green innovation and sustainable business performance of MSMEs especially during the Covid-19 Pandemic. The research subjects taken in this study were MSME actors in the food and beverage sector at Pematangsiantar City, totaling 371 MSMEs. The analysis technique used in this study was Structural Equation Modeling (SEM) using the Smart PLS program. The results of this study indicated that green innovation has a positive and significant influence on sustainable business performance, especially on social performance and environmental performance, while it has no significant effect on economic performance.*

**Keywords:** *Green Innovation, Sustainable Business Performance, and MSMEs.*

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## **I. INTRODUCTION**

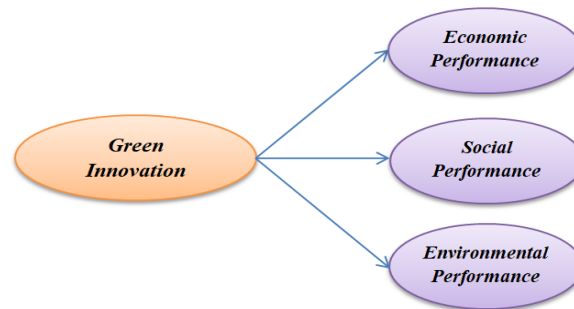
In the 21st century, humanity faces major challenges in the form of environmental degradation and global warming. These conditions are forcing businesses to adopt and incorporate more sustainable manufacturing methods to produce environmental products and services. It is inevitable for organizations to adopt green practices to achieve sustainable performance [1], [2]. One of them is in the Micro, Small and Medium Enterprises (MSMEs) sector which is the cornerstone of the Indonesian economy. Green innovation is an approach used in the manufacturing industry to promote organizational sustainability by embracing sustainable development practices [3]. Economic, social and environmental dimensions are considered very important for innovation and sustainable business performance [4], [5]. In line with this, academics have shown the importance of financial performance, social welfare, and environmental quality for the welfare of the general public [1], [3], [6]–[8].

The strategic path in making improvements to the economic, social and environmental dimensions can be traced through the implementation of continuous innovation by the company [9]. So that it can be said to achieve proper business performance, an important competitive component in the company's business operations is the implementation of a sustainable innovation strategy [10]. The main problem in the research is that there are still many MSMEs that have not optimally adopted green innovation where the majority of innovations carried out only consider business profits without regard to the impact of innovations carried out on environmental sustainability. Especially during the Covid-19 Pandemic, health has become a major issue that is of great concern to the public. The next problem is the lack of qualified employees and technology owned by MSMEs in supporting the adoption of green innovation. Based on the phenomenon of the problem described above, this study aims to analyze the determinants of green innovation adoption and determine the relationship between green innovation adoption and sustainable business performance improvement in UMKM in Pematang Siantar City, especially during the Covid-19 Pandemic.

## **II. METHODS**

The sampling method used in this study was a purposive sampling method, where this technique was chosen because the researchers only focused on research on 371 MSMEs in the food and beverage sector, spread across eight districts of Pematang Siantar City [11]. In testing the hypothesis, we used a variant-based

Structural Equation Modeling (SEM) called Partial Least Square (PLS) and the SmartPLS application version 3.0 as a tool to analyze it.



**Fig 1.** Conceptual Framework

### III. RESULT AND DISCUSSION

The questionnaire was distributed offline by surveyor, which resulted in 371 responses. The characteristic of respondents can be seen in the table 1 below:

**Table 1.** Demographic Characteristics of Respondents

Category	Item	Frecuency	Percentage (%)
Sex	Male	130	35.04
	Female	241	64.96
Age (Years)	17-30	111	29.92
	31-40	103	27.76
	41-50	91	24.53
	51-60	42	11,32
	>60	24	6.47
Education Stage	Primary School	41	11.05
	Junior High School	40	10.78
	Senior High School	231	62.26
	Diploma	19	5.12
	Bachelor	37	9.97
	Master	2	0.54
	Doctorate	0	0.00
	Not Going to School	1	0.27
Long Time In Business (Years)	<1	15	4.04
	1-5	128	34,,50
	6-10	97	26.15
	11-15	57	15.36
	16-20	32	8.63
	>20	42	11.32
Districts	Siantar Utara	122	32.28
	Siantar Barat	68	18.33
	Siantar Selatan	7	1.89
	Siantar Timur	64	17.25
	Siantar Marihat	20	5.39
	Siantar Marimbun	28	7.55
	Siantar Martoba	36	9.70
	Siantar Sitalasari	26	7.01
Net Worth	≤ Rp 50.000.000	235	63.34
	Rp 50.000.000 - Rp 500.000.000	107	28.84
	Rp 50.000.000 - Rp 10.000.000.000	29	7.82
Annual Sales	≤ Rp 300.000.000	241	64.96
	Rp 300.000.000 - Rp 2.500.000.000	107	29.11
	Rp 2.500.000.000 - Rp 500.000.000.000	22	5.93

The validity test was proven based on the results of convergent and discriminant validity, which can be seen in the table 2 below:

**Table 2.** Validity, Reliability, and R-Square Tests

Variable	Item	Loading Factor	Average Variance Extracted (AVE)	Composite Reliability	Cronbach's Alpha
<i>Green Innovation (GI)</i>			<b>0.609</b>	<b>0.862</b>	<b>0.786</b>
	GI2	0.799			
	GI3	0.746			
	GI4	0.785			
	GI5	0.792			
<i>Economic Performance (ECP)</i>			<b>0.840</b>	<b>0.912</b>	<b>0.848</b>
	ECP1	0.985			
	ECP3	0.842			
<i>Social Performance (SCP)</i>			<b>0.721</b>	<b>0.886</b>	<b>0.807</b>
	SCP1	0.860			
	SCP2	0.819			
	SCP3	0.867			
<i>Environmental Performance (EVP)</i>			<b>0.634</b>	<b>0.874</b>	<b>0.807</b>
	EVP2	0.808			
	EVP3	0.744			
	EVP4	0.835			
	EVP5	0.797			
<b>Discriminant Validity</b>					
	<b>ECP</b>	<b>EVP</b>	<b>GI</b>	<b>SCP</b>	
<b>ECP</b>	0.916				
<b>EVP</b>	0.057	0.796			
<b>GI</b>	-0.018	0.667	0.781		
<b>SCP</b>	0.070	0.567	0.625	0.849	
<b>R-Square</b>					
			<i>R-square</i>	<i>R-square Adjusted</i>	
<b>Economic Performance</b>			0.000	-0.002	
<b>Social Performance</b>			0.445	0.444	
<b>Environmental Performance</b>			0.391	0.389	

For convergent validity, the value of each indicator variable for green innovation, economic performance, social performance, and environmental performance was above 0.7 for loading factor and above 0.5 for Average Variance Extracted (AVE). These results indicated that most of the variance was explained by constructs. Thus, convergent validity for the measurement scale items was achieved. Then, for discriminant validity, the cross-loading value of each variable was above 0.7 which indicates acceptable discriminant validity. Furthermore, the value of composite reliability and the value of Cronbach's alpha obtained for each variable was above 0.70. This showed a satisfactory level of internal consistency and high reliability for assessing each construct. Seen from the R-square value was 0,000 for economic performance, this showed that overall the ability of green innovation in explaining economic performance was negligible, the R-square value was 0.445 for social performance, this showed that overall the ability of green innovation in explaining social performance was moderately, and the R-square value was 0,391 for environmental performance, this showed that overall the ability of green innovation in explaining economic performance was low [12]. To prove the hypothesis testing, a significance test was carried out to determine the relationship between the exogenous variables and the endogenous variable. The significance criterion was seen from the p-value. With a significance level of 5%, if the p-value between the exogenous variables and the endogenous

variable is less than 0.05, the exogenous variables significantly affect the endogenous variable. In contrast, if the value is higher than 0.05, it means that the exogenous variables do not have a significant effect in building the endogenous variable. The results of the hypothesis test are presented in table 3 below:

**Table 3.** Hypotheses Result

Path	$\beta$	t-Statistics	P-Value	Result
GI -> ECP	-0,014	0,240	0,810	Not Supported
GI -> SCP	0,626	18,283	0,000	Supported
GI -> EVP	0,671	20,672	0,000	Supported

The results of testing the hypothesis showed that the P-value for green innovation against economic performance was  $0.810 > 5\%$  (0.05) so that hypothesis was not supported, it could be concluded that there was no significant effect between green innovation on economic performance. While the P-value for green innovation against social performance was  $0.000 < 5\%$  (0.05) so that hypothesis was supported, it could be concluded that there was significant effect between green innovation on social performance. Then the P-value for green innovation against environmental performance was  $0.000 < 5\%$  (0.05) so that hypothesis was supported, it could be concluded that there was significant effect between green innovation on environmental performance. The results of this study indicated that green innovation had a positive and significant effect on sustainable business performance [2], [13], [14], especially on social performance and environmental performance. The results of this study strengthened the results of previous studies conducted by [4], [8], [15], [16]. Meanwhile, for economic performance, it showed a negative and insignificant effect, where this results was contrary to the results of research [16], which suggested that green innovation had a positive and significant effect on economic performance.

#### IV. CONCLUSION

This study confirmed that from three hypotheses developed regarding the effect of green innovation on sustainable business performance, only two results were acceptable, namely the effect of green innovation on social performance and environmental performance. Meanwhile, the effect of green innovation on economic performance showed a negative and insignificant effect. From a theoretical perspective, this research further enriched the current literature on MSMEs research using Resource-Based View (RBV) theory and raises the theme of green innovation as a research topic which had rarely been studied before. Meanwhile, in terms of practical implications, the findings of this study were expected to determine the effect of green innovation on sustainable business performance for MSMEs during the Covid-19 Pandemic.

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