

Strategy for increasing green economic performance of small and medium enterprises based on green business management

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Abstract. Green management behavioral is quite pertinent to enhance small and medium enterprises economic green performance. Micro, small and medium enterprises (MSMEs) need to adopt environmental paradigms in order to reach the economic green performance. The purpose of this study was to examine relationships between green management and competitive advantage strategies for increasing green economic performance MSMEs in Central Java Province. The population of this study was MSMEs in Central Java. This study was quantitative analysis. The analytical tool in this study used Structural Equation Modeling (SEM) with warp PLS program applications. The results showed that MSMEs that implement green management in their business operations can improve company performance through the ability to compete with these MSMEs. MSMEs could be implementing Green management activities by producing environmentally friendly products, campaigning for environmentally friendly movements, investing capital in environmentally friendly businesses and allocating costs for waste treatment, implementing quality standards that are environmentally friendly in the production process. The better MSMEs in implementing green management, the better MSMEs in competing in the industry, which will improve the company's green performance such as getting financial benefits from managing environmentally friendly businesses, getting bonuses in the form of prizes from private/ government institutions for implementing environmentally friendly businesses, get bonuses in the form of tax rate relief from the government, get bonuses in the form of soft loans from private/ government institutions as well as increased sales of MSME products due to applying environmentally friendly businesses. Thus, the application of environmentally sound business management (green business management) needs to be developed among MSMEs players. This is because MSMEs can not only increase additional income, but MSMEs can also participate in preserving the environment.

1. Introduction

Nowadays, environmental problems have become a serious problem that is being faced by the world. Ecological threshold or the ability of the earth to provide resources for humans must be used as a benchmark in the process of development and policy making. Earth resources such as biodiversity and environmental services are capital to meet food, water and energy security. The World Wide Fund for Nature confirms that without efforts to reduce over consumption and exploitation of natural resources, with its large and increasing population, the world will face scarcity of natural resources and environmental degradation. The company's activities for the economy and development in general not only have a developing impact on the country, but also have a destructive impact, which leads to conflicts between the community or stakeholders and business actors [1]. Every country in the world, will also gradually experience negative impacts from business activities that cause environmental damage, including Indonesia. Problems arising from environmental damage from business management that is not environmentally friendly can be in the form of water pollution, air pollution, forest destruction, and social damage. The problem of environmental damage has made the community aware of the importance of healthy living, namely the need for environmentally friendly products and services.



A healthy organization will be demanded to always create value. In the era of intense industrial competition accompanied by rapid technological developments, the issue of environmentally friendly industries was once again encouraged. Therefore, in these conditions the concept of value that needs to be instilled in all business activities, one of which is environmental conceptual behavior. Lately, building a green business has become popular among businesses, especially among large industry players. Every industry is required to build an environmental management system. The environmental management system is part of the organization's management system which is used to develop and implement environmental policies and also as a guide for organizations in managing environmental aspects (ISO 14001). For them, green management is no longer considered imaging but has become a necessity if the company wants to stay long. This is because, the existence of a green business will continue to be maintained by all stakeholders: employees, consumers, communities, suppliers, governments, and even nongovernmental organizations. Green management itself is a business activity to make raw materials and auxiliary materials into goods and services by prioritizing the balance between economic, social, and environmental benefits [1].

Whereas at the micro, small and medium (MSMEs) industry level, green management models have not been widely used in their operational processes. Indonesia itself has a fairly, high number of MSMEs and every year the number continues to grow. Therefore, it is very important to be able to learn green management models for MSMEs in Indonesia. Green management is expected to help industry to not only increase profits, but also to carry out their social responsibilities to the community and to preserve the environment. One of the main motivations for being environmentally responsible is competition [2, 3]. There is plenty of evidence that shows that improvements in business environment management can have an impact on creating a mutual benefit impact for small scale businesses in terms of reducing waste, cost saving, increasing customer satisfaction, increasing employee's commitment, product improvement, relations with the public closer, and competitive advantage [4]. Research results show that companies that can demonstrate their concern for environmental sustainability through a variety of company operational policies will be able to increase their competitive ability [5].

Similarly, companies that are able to apply a green culture in each of their business activities can increase the competitive ability of the company [6]. Results of previous studies as well indicate the same thing that, there is a correlation between environmental based business practices with MSME managers as well as organizational efficiency, profitability, and corporate image [7, 8]. A company's ability to provide green marketing services can increase the intensity of consumer purchasing decisions [9]. A company's ability to demonstrate its environmental responsibilities can have an impact on a company's marketing strategy by sustaining and increasing market share and to differentiate its business from its competitors [10]. Other research results show that the relationship between the company's ability to manage green management and the company's green performance can also be mediated by the company's competitive ability [11].

The effect of applying green management to small industries can also improve the sustainable performance of these small industries [1, 12]. This activity generates higher profits in the industry, as well as improving financial costs efficiency [4]. Small and medium scale companies oriented to the environment can also enjoy financial incentives, which are obtained in the form of subsidies [13], gifts, soft loans and special tax rates [14]. Specific incentives intended for MSMEs that focus on the environment also determine the improvement of environmental quality in the surrounding community. Included in this matter are macro and micro funding, which is dedicated to environmental-based business initiatives, such as reducing emissions of emissions, healthy food, improving the quality of the environment, and so on. Based on data from the Cooperative Office of MSMEs in Central Java Province, the number of MSMEs assisted in Central Java has always increased from year to year (2015, 108,397; 2016, 115,751; 2017, 133,679; 2018, 143,738; 2019, 147,223). As one of the provinces that has excellent industrial potential for the development of MSMEs, it is also appropriate to develop environmental concepts in various regional government frameworks going forward.

Based on the above background, the research problems formulated are as follows:

RQ1: Does the application of green management affect the competitive advantage of MSME's in Central Java?

RQ2: Does the application of green management affect the green economic performance of MSME's Central Java?

RQ3: Does the the competitive advantage affect the green economic performance of MSME's Central Java? RQ4: Does the application of green management affect the green economic performance of MSME's Central Java through competitive advantage?

2. Method

The population in this study was MSMEs in Central Java Province. The target data that would be used as research were 150 respondents, namely business owners (key people) spread over 5 cities and regencies in Central Java, the five residencies include: 1) Pekalongan residency (Pekalongan, Tegal, Brebes, Pemalang, Batang); 2) Semarang Residency (Semarang, Ambarawa, Kendal, Demak, Salatiga, Boyolali, Solo, Klaten); 3) Pati Residency (Pati, Rembang, Jepara, Kudus); 4) Residency of Kedu (Magelang, Temanggung, Wonosobo, Grobogan, Purwodadi); 5) Residency of Banyumas (Purwokerto, Kebumen, Purbalingga, Banyumas,

This study examined four main variables, namely: competitive advantage, Green Business Management and organizational performance. The Green Economic Performance variable in this study was the level of achievement of environmental oriented organizational goals. The measurement of performance variables uses indicators of economic benefits, financial incentives, stakeholder demand, legislation, resources, motivation and knowledge. This variable was measured using 5 question items developed by Siegel (2009) and several researchers [15-17]. An example is "I benefit financially from managing an environmentally friendly business".

While the Green Business Management variable in this study defined business activities that use innovation as a tool to achieve sustainability of natural resources, reduce waste of natural resources, increase social prosperity and provide a competitive advantage for companies. Companies that use green business management are companies that are able to expand the financial goals of the company in addition to looking for economic benefits as well as increasing social prosperity and maintaining the sustainability of natural resources. The measurement of this variable uses indicators of Green Marketing, Green Finance, Green Human Resources, and Green Operations. This variable is measured by eight question items developed from several researchers [9, 17-19]. An example is "One form of my product promotion is to campaign for an environmentally friendly movement".

Furthermore, the variable competitive advantage in this study is interpreted as an advantage in terms of resources and expertise possessed by the company as well as excellence in achieving performance related to the company's position compared to its competitors. To measure the variables of competitive advantage used indicators of cost advantage, quality advantage, innovation advantage and expansion advantage. This variable is measured using five proxy questions developed by Source: [10, 20-23]. An example is "My business has a good reputation in the eyes of consumers".

2.1. Data Collection and Analysis Techniques

To answer the research problem two types of data are used, namely primary data and secondary data. Primary data obtained by survey and questionnaire methods directly from the informant/ respondent. In this study primary data will mainly be extracted from respondents. The population in this study were all fostered MSMEs in the province of Central Java. The method of sampling in this study uses the proportional stratified random sampling method, with the condition that MSMEs observed are MSMEs that have insight into green business. While secondary data is obtained from data and information from documents/ publications/ research reports from government agencies/ agencies and other supporting data sources. The instruments to be used in this study are in the form of questionnaires and interview guides. The analytical method that will be used in this study uses quantitative analysis methods with Structural Equation Modeling (SEM) analysis tools through the WARP PLS application.

3. Results and Discussion

3.1 Instrument Validity Test

This research instrument has gone through a process of validity testing. Validity test is measured through convergent validity test and discriminant validity test. Convergent validity test results using Warp PLS 6.0 in this research, indicate that all statements have met the convergence of validity. This is indicated by the loading factor value ≥ 0.30 for each statement item. This shows that each indicator validly measures the dimensions of the concept being tested. Meanwhile, the results of discriminant validity test on the instrument using Warp PLS 6.0 can be seen from the comparison of AVE square (Average Variance Extracted) with the correlation coefficient, if the AVE root is greater than the correlation coefficient with other variables, then the questionnaire is claimed as valid discriminant.

Table 1. The root of AVE and Correlation Coefficient

	Gmanage	CAdvan	Gperform
Gmanage	0.741	0.665	0.627
CAdvan	0.665	0.860	0.706
Gperform	0.627	0.706	0.866

Source: Primary Data (2019)

In Table 1 could be seen that the comparison of AVE (Average Variance Extracted) square root with the correlation coefficient on each variable shows the value per question item is greater than the corresponding correlation variable, thus this instrument meets the discriminant validity criteria. This shows that each construct that was tested was indeed different and each was an independent construct.

3.2 Instrument Reliability Test

The results of reliability testing on this research instrument have shown that each variable accordance with the reliability requirements. This is indicated by all composite reliability coefficient values > 0.70 and Cronbach alpha coefficient values > 0.60 (Table 2). This shows that all variables have met the requirements of both composite reliability and internal reliability consistency (Cronbach's alpha coefficient). Thus, it can be said that each individual indicator is capable of measuring an equal measurement and is sufficient to represent constructs.

Table 2. Composite Reliability dan Cronbach's Alpha

No.	Variabel	Composite Reliability Coefficient	Cronbach's Alpha Coefficient
1	Gmanage	0.907	0.882
2	CAdvan	0.934	0.912
3	Gperform	0.937	0.916

Source: Primary Data (2019)

3.3 Fit Model and Quality Indices

Figure 1 illustrates the model of path analysis results that are processed using Warp PLS 6.0. The model has accordance with the requirements for goodness of fit (Table 3). The model has fulfilled the basic criteria for model fit test using Warp PLS 6.0, which has fulfilled the requirements of the average path coefficient (APC) $p < 0.05$ (0.490, $P < 0.001$), the average R-squared (ARS) value, $p < 0.05$ (0.500, $P < 0.001$) and average adjusted R-squared (AARS)) $p < 0.05$ (0.496, $P < 0.001$). Thus, the model can be said to be fit and can be used for measurements at a later stage.

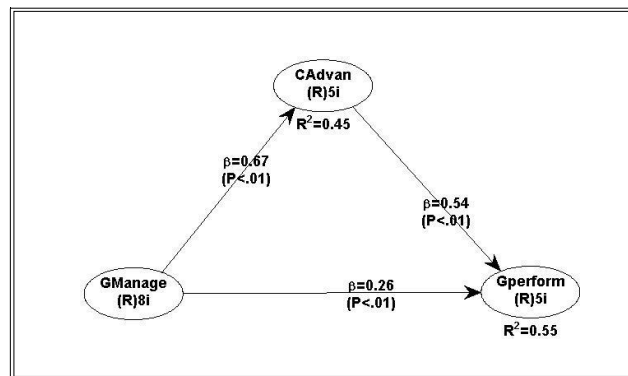


Figure 1. Model of path analysis results using WarpPLS 6.0

Table 3. Fit Model and Quality Indices

No.	Fit Model and Quality Indices	Criteria of Fit	The result of analysis	Note
1.	Average path coefficient (APC)	$p < 0.05$	0.490 ($P < 0.001$)	Good
2.	Average R-squared (ARS)	$p < 0.05$	0.500 ($P < 0.001$)	Good
3.	Average adjusted R-squared (AARS)	$p < 0.05$	0.496 ($P < 0.001$)	Good
4.	Average block VIF (AVIF)	Accepted if ≤ 5 , Ideally ≤ 3.2	1.900	Ideal
5.	Average full collinearity VIF (AFVIF)	Accepted if ≤ 5 , Ideally ≤ 3.2	2.179	Ideal
6.	Tenenhaus GoF (GoF)	Small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36	0.583	Ideal
7.	Sympton's paradox ratio (SPR)	Accepted if ≥ 0.7 , Ideally 1	1.000	Ideal
8.	R-squared contribution ratio (RSCR)	Accepted if ≥ 0.9 , Ideally 1	1.000	Ideal
9.	Statistical suppression ratio (SSR)	Accepted if ≥ 0.7	1.000	Ideal
10.	Nonlinear bivariate causality direction ratio (NLBCDR)	Accepted if ≥ 0.7	1.000	Ideal

Source: Primary Data (2019)

Table 3 shows that the model in Figure 1 accordance with the ideal goodness of fit requirements, so that it can describe how the relationship between construct variables and their assumptions.

3.4 The result of direct hypotheses

After the modeling assumptions using Warp PLS are fulfilled, then the analysis and interpretation of the hypothesis testing will be conducted using the resampling and t-test methods. If the p-value is ≤ 0.01 (alpha 1%), it can be said that the level of significance is very high. Furthermore, if the p-value is ≤ 0.05 (alpha 5%), then it can be said to be significant. Finally, if the p-value is ≤ 0.10 (alpha 10%), it can be said that the significance level is very weak.

Table 4. The Hypotheses Result of Direct Influence

No.	Relationship among variables		Path Coefficient	P-Value	Note
1.	Gmanage	CAdvan	0.671***	<0.001	High significance
2.	Gmanage	Gperform	0.257***	<0.001	High significance
3.	CAdvan	Gperform	0.541***	<0.001	High significance

Source: Processed Primary Data (2019)

Based on table 4, can be seen that the p-value on each relationship between variables shows a value <0.05 which is equal to <0.001, this shows that all hypotheses in this study can be accepted with a high level of significance.

3.5 The Result of mediation hypotheses testing

Table 5. The Result of Mediation Hypotheses Testing

Variabel Penjelasa	Variabel Mediasi	Response Variable	Path Coefficient of Indirect Influence	P-Value	Note
Gmanage	CAdvan	Gperform	0.363	<0.001	Mediate

Source: Processed Primary Data (2019)

Based on table 5, can be seen that the p-value on mediation hypotheses testing shows a value <0.05 which is equal to <0.001, this shows that indirect relationship in this study can be accepted.

3.6 The Affect of Green Managemen (Gmanage) on Competitive Advantage (Cadvan)

Table 4 shows the results of testing the hypothesis of direct influence showing Green Management (Gmanage) on Competitive Advantage (Cadvan). The results of the data processing explain that there is an influence of Green Management (Gmanage) on Competitive Advantage (Cadvan) with a path coefficient of 0.671 and $p < 0.001$. A value of $p < 0.01$ indicates that H1 is supported by a very high level of significance. Positive path coefficient (0.671) explains that the higher the Green Management (Gmanage) effect, the competitive advantage (Cadvan) increases.

This study is in line with research conducted by [1] which shows that business units that able to implement green management in their daily business activities will get a competitive advantage. According to this idea, the better the MSME in implementing green management, the better the MSME's ability to compete. The application of green management for MSMEs can be in the form of implementing environmentally friendly production processes, such as waste treatment and the use of environmentally friendly raw materials. In addition to the production process, MSMEs can also campaign for environmental preservation practices through marketing processes, such as when advertising. UKMM also needs to invest their business results in environmentally sound business units as well. Thus, MSMEs can enhance exclusive cooperative relations with suppliers and distributors, so that MSMEs' abilities are increasingly superior in competition.

3.7 The Affect of Green Management (Gmanage) on Green Performance (Gperform)

Table 4 shows the results of the hypothesis of the direct effect of the relationship between Green Management (Gmanage) on Green Performance (Gperform). The results of data processing indicate that there is an influence of Green Management (Gmanage) on Green Performance (Gperform) with an efficient path is 0.257 and $p = 0.001$. A value of $p < 0.01$ indicates that H2 was received with a very high level of significance. While the path coefficient value is positive (0.257) shows that the higher the influence of Green Management, the Green performance increases. The results of this study support the results of research conducted by [1, 7-8, 11] who propose how the application of environmental based management in a business unit can create improved performance for the business unit. Such as the ease in getting soft loans, get additional benefits from waste treatment, to get grants/ gifts from special institutions that are concerned with environmental preservation. Thus, the better MSMEs are in managing their business related to the environment, the better MSMEs will improve their green performance in the industrial environment.

3.8 The Affect of Competitive Advantage (Cadvan) on Green Performance (Gperform)

Table 4 shows the results of testing the hypothesis of a direct effect between the variables of competitive advantage (Cadvan) on Green Performance (Gperform). The results of data processing explained that there was an influence of competitive advantage (Cadvan) on Green Performance (Gperform) with path coefficients of 0.541 and $p < 0.001$. A value of $p < 0.01$ indicates that H3 is accepted with a high level of significance. Positive path coefficient (0.541), shows that the higher the influence of competitive advantage (c.adv), the higher the level of green performance of a business unit.

The results of this study are in line with the results of the study [11] which confirms that competitive advantage affects the company's green performance. Thus, the better MSMEs are in competing in the industry, the better the company's green performance. The ability to compete in MSMEs can be improved through increasing exclusive relationships with environmentally friendly suppliers and establishing exclusive cooperation with distributors and agents in marketing their products, so MSMEs can enjoy various benefits that can improve their performance.

3.9 The Affect of Green Management (Gmanage) on Performance (Gperform) through Competitive Advantage (Cadvan)

Table 5 shows the results of the hypothesis of the indirect effect of Green Management (Gmanage) variables on Performance (Gperform) through Competitive Advantage (Cadvan). The results of data processing indicate that there is an influence of Green Management (Gmanage) on Performance (Gperform) through Competitive Advantage (Cadvan) with path coefficients of 0.363 and $p < 0.001$. A value of $p < 0.01$ indicates that H4 is supported by a high level of significance. This means that Competitive Advantage is a mediating variable because it is able to be an intermediary between Green Management (Gmanage) on Performance (Gperform).

The results of this study are on the same track as the results of research [11] which confirms that the application of Gmanage can improve the green performance of SMEs through the application of competitive advantage. Therefore, the better the company implements green management in the industry, the better the company's performance through competitive advantage. Thus, to improve the green performance of MSMEs, MSMEs need to improve the implementation of green businesses, both in terms of capital, marketing and production processes, which must be environmentally sound. The ability of UMKM in implementing the green business is expected to be able to

improve the exclusive cooperative relationship between MSMEs with speakers and distributors. Thus MSMEs will enjoy various benefits that can improve their performance, such as profits from waste treatment, soft loans and grants.

4. Conclusions

Based on the results of this study, it can be concluded that MSMEs that implement green management in their business operations can improve company performance through the ability to compete with these MSMEs. Green management activities that can be carried out by MSMEs can be done in several ways. For example, if viewed from the perspective of marketing management, MSMEs should produce products that are environmentally friendly, both in terms of the quality of raw materials and product packaging. By selling environmentally friendly products, MSMEs can campaign for environmentally friendly movements. In addition to the marketing function, MSMEs can also carry out activities in the financial function through investing capital in environmentally friendly businesses and allocating costs for waste treatment. Furthermore, in operational management activities, MSMEs can implement work mechanisms that can keep hidden toxic goods and materials in products produced from business operations and apply environmentally friendly quality standards in the production process. Finally, MSMEs also need to have employees who have skills in processing products that are environmentally friendly and have employees who have behaviors that reflect a friendly attitude towards the environment, in order to be able to implement green management comprehensively and work together in every field/ function.

These green management activities can enhance the competitive ability of MSMEs, such as having exclusive relationships with suppliers/ suppliers for the acquisition of environmentally friendly raw materials (having legal cooperation ties), having exclusive relationships with distributors/ retailers to distribute finished goods, having superior knowledge to manage business processes/ produce quality products at lower costs, have a strong market position compared to competitors and have a good reputation in the eyes of consumers. The better MSMEs are in implementing green management, the better MSMEs are in competing in the industry, which will improve the company's green performance. Green performance as a result of the implementation of green management that will be achieved can be in the form of financial benefits from managing environmentally friendly businesses, getting bonuses in the form of prizes from private/ government institutions for implementing environmentally friendly businesses, getting bonuses in the form of tax rate relief from the government, get bonuses in the form of soft loans from private / government institutions as well as increased sales of MSME products due to applying environmentally friendly businesses.

Thus the application of green management has a significant effect on improving the green performance of MSMEs in Central Java, Indonesia. Business actors, regional and central government, along with private institutions and communities need to jointly increase the intensity of the application of green management among industry players, especially MSMEs. So that the preservation of the earth is maintained forever. Theoretically, this research model still needs to be explored again related to mediation variables that have a relationship between the application of green management and company performance, such as variables of creativity, innovation and knowledge.

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