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# Impact of Traditional Environmental Management Measures and Ecological Product Diversification on MSME Performance: Evidence of the Batik Industry in Central Java, Indonesia

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**Abstract**

**Research aims:** This research aims to investigate the influence of traditional environmental management practices on corporate performance and determine the mediating role of ecological product diversification in this regard.

**Design/Methodology/Approach:** To achieve these objectives, a research design was developed and tested using a sample of 138 micro, small and medium enterprises (MSMEs) operating in the batik industry in Central Java, Indonesia. Observation data were then analyzed using Structural Equation Modeling (SEM) utilizing Amos software.

**Research findings:** The analysis results demonstrated that traditional environmental management and ecological product diversification had a direct positive impact on the performance of small and medium enterprises. However, these results did not confirm the mediating role of ecological product diversification.

**Theoretical contribution/Originality:** This study provides convincing evidence regarding the impact of environmentally friendly product diversification on MSME performance. Therefore, MSMEs, especially those operating in the batik industry, are encouraged to diversify environmentally friendly products to increase competitiveness and adapt to people's concern for the environment in the current era (green economy).

**Practitioners/Policy implications:** It is acknowledged that the overall results obtained from this research provide a significant contribution to the understanding of the importance of environmental management practices and environmentally-friendly product diversification to increase business efficiency in the context of MSMEs.

**Research limitations/Implications:** This study had a limited scope and only covered the Central Java region. Subsequent research can further expand the scope of the research field.

**Keywords:** Traditional Environmental Management; Ecological Product Diversification; Performance; MSMEs; Batik Industry; Central Java; Indonesia

## Introduction

Micro, small and medium enterprises (MSMEs) not only make a significant contribution to the economy but are also associated with environmental damage (Geng et al., 2021; Ndubisi et al., 2021). In response to policies and regulations on environmental protection, these enterprises have been

motivated to implement traditional environmental management practices (Geng et al., 2021). These practices include activities such as emission reduction, minimizing hazardous substances in production, and limiting collaborations with environmentally damaging suppliers or stakeholders (Zhu et al., 2017, 2018). However, it is worth noting that MSMEs worldwide often face challenges in terms of their lack of ability or resources to implement green management effectively (Geng et al., 2021). As a result, traditional environmental management practices were included in environmental regulations to facilitate compliance (Ndubisi et al., 2021). The adoption of these specific strategies by MSMEs depends on both internal factors, such as competence and strategic orientation, and external factors, which include the competitive environment (Hansen & Klewitz, 2012). Furthermore, Hansen and Klewitz (2012) stated that these enterprises tend to be reactive in response to external stimuli, such as regulations, green movements, benchmarking, and other external pressures related to environmental issues.

In general, MSMEs have been found to implement environmental management practices in response to pressures from consumers and governments (Huang et al., 2015). This effort is specifically important because reducing the negative environmental impact of business activities is crucial for achieving sustainable development, and companies, specifically those adopting environmental management practices, play a crucial role in this regard. Furthermore, these conventional environmental management practices and eco-product diversification strategies are proactive measures that demonstrate the "early movers" approach of MSMEs in making strategic choices based on the competitive advantages provided by adopting a green economy.

Preceding research centered more on the system of enforcing a green economic system in preference to its benefits (Blanco et al., 2009; Molina-Azorín et al., 2009). These studies revealed that the relationship between environmental practices and commercial enterprise performance had an indirect impact on the successful implementation of an inexperienced economy (Blanco et al., 2009; Molina-Azorín et al., 2009; Ryszko, 2016), indicating that these variables functioned as a mediator in the relationship. Blanco et al. (2009) uncovered that there may be no direct motive-and-impact relationship between environmental concepts and economic overall performance. In addition, as Molina-Azorín et al. (2009) evidently reported, there was no direct impact between the two elements mentioned above. Therefore, this study aims to analyze the benefits of implementing conventional environmental management measures in the overall performance of small and medium corporations, such as diversification closer to new merchandise and environmental friendliness as an intermediate variable. The primary objective of this research is to pick out micro, small and medium establishments (SMEs) operating inside the batik industry. This area was selected because of the excessive environmental effect related to the manufacturing and use of batik merchandise.

Batik is a national product of Indonesia, and it is commonly produced by MSMEs primarily located in Central Java. The batik industry not only serves as a significant contributor to the economy of the country but has also been associated with poor environmental records (Yaacob et al., 2015). Nevertheless, the use of synthetic dyes in the production of these commodities has led to a decline in demand from several destination countries

(Martuti et al., 2020; Widjajanti et al., 2022). This is due to the adverse effects of synthetic dyes, specifically the artificial variants, on the health of animals and humans (Lellis et al., 2019), including the risk of cancer (Chung, 2016; Widjajanti & Widodo, 2016), water pollution (Budiyanto et al., 2018), and the disruption of the balance of organisms and ecosystems (Naqsyabandi et al., 2018; Widjajanti et al., 2020).

Moreover, over the years, global demand for eco-friendly products has increased due to the adoption of eco-friendly lifestyles and environmental awareness movements. In response to this trend, the batik industry has embraced traditional environmental management practices to foster a harmonious relationship between nature and the sector (Kasiri & Safapour, 2014). Within this sector, significant opportunities exist to promote eco-product diversification through the implementation of these strategic management practices. For instance, the use of organic materials in batik dyeing presents a cleaner production method.

## **Literature Review and Hypotheses Development**

### **Contingency Theory**

Contingency theory, put forward by Donaldson (2001), states that organizational effectiveness is achieved when the characteristics of an organization are appropriate to its specific situation (Donaldson, 2001). In the context of this research, contingency theory suggests that these effects can be achieved through the application of specific management methods that suit the unique circumstances of the organization and that MSMEs can flexibly incorporate these important approaches into their business to effect change degrees. Following this, previous research has explored contingent factors influencing the relationship between environmental management practices and performance improvement (Furlan Matos Alves et al., 2017; Wiengarten et al., 2012). Hence, this study aims to test whether the application of these approaches, which MSMEs generally adopt, can encourage the development of diversified, environmentally friendly products and ultimately lead to improved performance. It is important to note that MSMEs show variation in the level of environmental management practices they employ, which is related to their unique characteristics, as highlighted by (Dey et al. 2018).

### **Competitive Advantage Theory**

Competitive advantage is one of the core attributes used to measure the performance level of a company amidst competition and environmental changes. Accordingly, competitive advantage theory states that to outperform competitors, companies must adopt specific strategies that enhance their business performance (David, 2011; Porter, 1985). According to Porter (1985), this attribute can be attained through differentiation focus. The term "differentiation focus" entails designing products that cater to the specific needs of a better-targeted segment, surpassing the offerings of competitors. In the context of this study, eco-product diversification was specifically tailored to meet the demands of consumers and governments prioritizing environmental issues.

Meanwhile, the process of development involved aligning the value chain to sequentially address the needs of different segments, thereby enhancing buyer value. This alignment corresponds to the implementation of traditional environmental management practices. The strategy of eco-product diversification, resulting from the adoption of these practices, becomes a competitive advantage (differentiation focus) for companies seeking to enhance their business performance.

### **Traditional Environmental Management Practices and Eco-Product Diversification**

Traditional environmental management practices play an important role in creating favorable conditions for the development of ecological products. In other words, ecological product diversification can be achieved when an organization implements strategies that encourage effective environmental management. These practices contribute to creating environmentally friendly products. In the field of innovation, ecological product diversification is an important aspect and is positively influenced by the implementation of such strategies (Pereira & Vence, 2012). One such strategy is proactive environmental management, which requires companies to prevent environmental degradation by adopting innovative methods to develop environmentally friendly products, processes, and technologies (Ryszko, 2016). Of course, the participation of economic actors in these activities will not only minimize the impact on the environment but also open up opportunities for economic actors to enter new markets and increase the creation of various organic products based on Thai orchids (Lin & Chang, 2015). Previous research conducted by Al-Shami and Rashid (2022) explains that environmentally friendly product innovation plays a moderating role in the relationship between EMS strategy and sustainable development, while no influence was found. Thus, what is the moderating impact between corporate responsibility and sustainability? In particular, Fernando et al. (2019) showed that the implementation of environmentally friendly product innovation supports sustainable business performance. Based on this analysis, hypothesis 1 of this research was constructed as follows:

*H<sub>1</sub>: Traditional environmental management practices have a positive impact on ecological product diversification.*

### **Traditional Environmental Management Practices and Performance**

Environmental management actions are traditionally required to achieve better performance (Geng et al., 2021). These practices are still in the early stages of green economy adoption (Grazzi et al., 2019; Salim et al., 2018), which poses challenges for MSMEs while offering significant opportunities to improve their competitiveness and commercial performance (Valdez-Juárez & Castillo-Vergara, 2021). Furthermore, it was found that environmental management activities carried out by companies had a significant positive impact on their economic performance (Cai & Li, 2018). The adoption of these methods is often driven by external pressures such as strict government regulations and stakeholder demands. These regulations and requirements create proper awareness of the importance of environmental management among MSME owners, main

to competitive blessings and advanced performance through reduced fees and advanced reputation (Díaz-García et al., 2015). It is critical to observe that environmental management practices do not have a poor impact on monetary effects either in the short term or within the worldwide financial system (Cainelli et al., 2011). Therefore, Hellström (2007) and Rennings and Rammer (2011) advise the subsequent definitions of product and manner innovation as units with included environmental technology, wherein both innovations are implemented to create merchandise that is much less dangerous to the surroundings. These hyperlinks the definition of green innovation with new product development and reflect Dangelico and Pujari's (2010) inexperienced product innovation. Based totally on this analysis, hypothesis 2 of this research was formulated as follows:

*H<sub>2</sub>: Traditional environmental management practices have a positive impact on efficiency.*

### **Eco-product Diversification and Performance**

Diversification serves as a strategic approach to increase profitability by expanding sales volume through market entry and product innovation (Njuguna, 2018). Notably, Njuguna (2018) emphasized the significant influence of diversification as a growth strategy on overall performance. In this regard, eco-product diversification presents a competitive advantage by catering to specific market demands. As environmental awareness grows, entrepreneurs are prompted to capitalize on opportunities by developing eco-friendly products. Furthermore, external pressures from stakeholders can compel companies to pursue diversification initiatives. The objective of this strategic approach is to yield positive outcomes in company performance.

Oyedijo (2012) defines product diversification as the addition of recent merchandise to an existing product variety via production or advertising and marketing (Oyedijo, 2012). Diversification has been proven to increase go-back on belongings and boost commercial enterprise profits (Eukeria & Favorit, 2014). In addition, organizations that initiate the introduction of environmentally friendly products and are the first to carry these products and technology to the marketplace generally tend to develop rapidly (Ryszko, 2016). Those companies had better overall performance than organizations that no longer took part in the initiative (Hojnik & Ruzzier, 2016). Preceding research by means of Afum et al. (2021) explained that studies effects display that lean practices have a good-sized fine impact on environmentally friendly product innovation, social overall performance, environmental protection, and monetary performance. The consequences also display that environmentally friendly product innovation has a substantial impact on environmental and social performance but no longer has an extensive effect on agency performance. The mediation technique indicates that environmentally friendly product innovation has an additional partial mediating function among economic activities, social sports, environmental protection, and business sports. Based on this evaluation, hypothesis three of this study was derived as follows:

*H<sub>3</sub>: Eco-product diversification has a positive effect on performance.*

### The Role of Environmentally Friendly Product Diversification in Moderating the Relationship Between Traditional Environmental Management Practices and MSME Performance

The role of environmentally friendly product diversification in mediating the connection between conventional environmental control practices and the performance of MSMEs (micro, small and medium organizations) is a method that may be used to enhance the financial overall performance and environmental impact of MSMEs, which often have confined resources (Buffa et al., 2018). MSMEs regularly undertake traditional environmental control practices because they would now not have access to or sufficient resources to implement modern-day, extra-environmentally friendly technologies or practices (Arda et al., 2019). It could consist of the use of much less environmentally friendly materials, the use of conventional energy, or the disposal of waste that does not meet environmental standards. Product diversification refers to an MSME approach to broaden services or products that can be more environmentally pleasant (Lutfi et al., 2023). It could also consist of production merchandise from recycled raw materials, the usage of renewable strength, or decreasing manufacturing waste. By growing more environmentally pleasant products, MSMEs can increase their market percentage and reduce their negative impact on the environment (Boakye et al., 2021). Environmentally friendly product diversification features as an intermediary between conventional environmental control practices and MSME overall performance. It denotes that by adopting greater environmentally friendly product practices, MSMEs can reduce the capability of bad impacts on their traditional environmental management practices.

*H<sub>4</sub>: Environmentally friendly product diversification has the potential to mediate the relationship between traditional environmental management practices and MSME performance.*

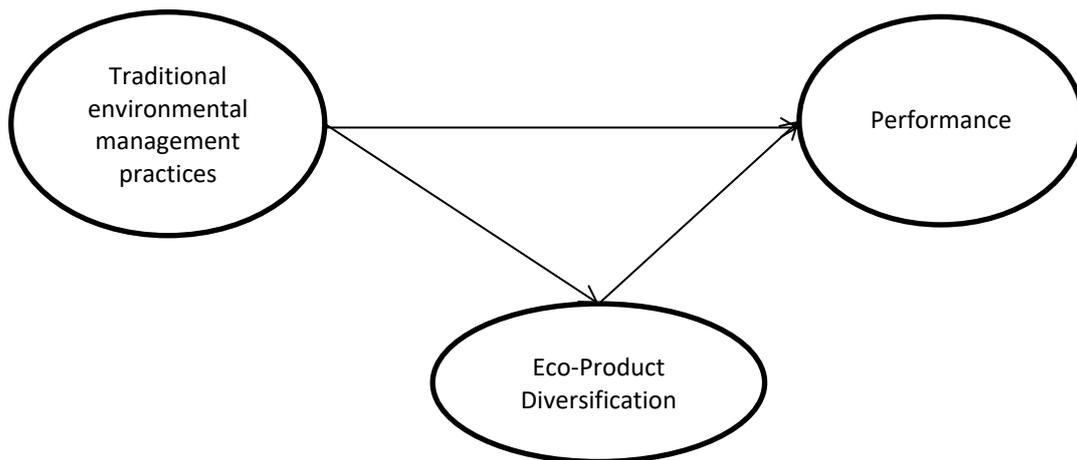


Figure 1 Thinking Framework

## Research Methods

This research applied quantitative methods to explore cause-and-effect relationships between various variables and draw general conclusions. The hypothesis put forward in this research was a causal hypothesis, i.e., a hypothesis suggesting the existence of a causal relationship between variables. The methodology used followed the principles of scientific discovery using quantitative methods. In this approach, hypotheses were developed and then tested quantitatively, leading to the formation of new ideas and conclusions.

### Variable and Measurement

Variable measurements in this study were based on references from previous studies. To assess traditional environmental management practices, the approach used was derived from the work of (Geng et al., 2021). Eco-product diversification was evaluated using measures from (Njuguna, 2018), while performance was assessed based on the strategy introduced by (Ryszko, 2016). To ensure the reliability of the model, indicators with loading values below 0.7 were excluded from the analysis. Therefore, traditional environmental management practices, eco-product diversification, and performance were assessed using three, four, and four indicators, respectively, with factor loading values above 0.7. A questionnaire was also utilized in this study for data collection, and all items were measured on a 5-point Likert scale ranging from strongly disagree to strongly agree. The following is an overview of the variables in this research.

**Table 1** Variable and Indicators

Variable	Indicators	Loading Factor
Traditional environmental management practices	We try our best to reduce the consumption of hazardous production materials.	0.740
	We adopt measures to reduce the consumption of hazardous production materials.	0.947
	We avoid using chemicals prohibited by regulations.	0.746
Eco-product diversification	We need to introduce eco-batik products to the market.	0.775
	Our eco-batik products elevate local wisdom as the strength of our products.	0.914
	We advertise eco-batik products in promotional media made for MSME.	0.840
Performance	We distribute eco-batik products in various cities.	0.791
	The quality of our products has increased.	0.769
	My profits have increased.	0.987
	My turnover has increased.	0.891
	I already feel the results of the return on investment.	0.837

### Sample and Data Collection

In this research, an online survey was used as a records collection approach to gather information from MSMEs within the batik industry in Central Java. A total of 200 questionnaires were distributed to the audience. However, the best 138 articles had been

completed efficaciously and met the desired sample necessities. The sampling method used in this research was purposive sampling, particularly selecting respondents who met certain criteria. In this situation, the criterion for inclusion in the pattern is that the respondent owned ecological batik merchandise.

### Data Analysis

The facts analysis approach in this research used Structural Equation Modeling (SEM) based totally on variance, and the software program utilized was Amos 22.0. SEM consists of several steps, which include developing a route diagram, comparing version suitability, and evaluating the structural version.

The validity test determines the potential of the study's tool to measure what it ought to be degree (Abdillah, 2009). Reliability testing also measures the consistency of measuring devices while measuring a concept or can also be used to degree respondents' consistency in answering questions about questionnaires or research devices. An extra detailed rationalization of the size version (external model) employed convergent validity, discriminant validity, and composite reliability checks is as follows:

The convergent validity of the dimension version can be visible from the correlation between indicator rankings and variable ratings. A trademark is stated to be valid if its AVE value is more than zero or indicates the loading cost of all external loading dimensions of the variable  $> 0.5$  (Abdullah, 2015). Descriptive validity occurs when two one-of-a-kind contraptions degree two constructs that cannot be correlated, resulting in uncorrelated scores (Hartono, 2008; Yogyanto, 2011). The discriminant validity of a measurement model provided by reflective indicators was assessed based on the cross-effects of measurements and constructs. According to Ghozal and Latani (2015), the descriptive validity method involves testing discriminant validity with a reflective index, especially considering that the cross-loading value of each variable must be  $> 0.7$ . Construct reliability can be measured using a reflective index in two ways, namely composite reliability and Cronbach's alpha. However, using Cronbach's alpha to test construct reliability gives a lower value (underestimation), so it is better to use composite reliability. In addition, reliability checking is shown in the total reliability value. Composite reliability is an accepted threshold for composite reliability (PC), specifically 0.7 (Abdullah, 2015). To assess the significance of the influence between variables, it is necessary to carry out a bootstrap procedure. The bootstrap procedure used the entire original sample for resampling. Hair et al. (2011) and Henseler et al. (2009) recommend a bootstrap sample size of 5,000, specifying that this number should be larger than the original sample. However, several publications (Chin, 2003; 2010a) stated that a bootstrap sample size of 200-1000 is sufficient to correct the standard error of SEM estimates (Ghozali and Latan, 2015). The significance value (two parts) used in the bootstrap method was 1.65 (significance level = 10%), 1.96 (significance level = 5n 2.58 (significance level = 5% mean = 5% mean = 5% mean = 1%).

## Results and Discussion

### Model Fit Assessment

The model was deemed to have a good fit based on the model fit criteria. These criteria established recommended thresholds, which were met by the results obtained. Additionally, the indicators forming latent variables showed results that complied with the criteria, with a CR value above 1.96 and a factor loading greater than 0.5.

**Table 2** Model Fit Measurement

The Goodness of Fit Indices	Cut-Off Value	Estimation Results	Decision
CMIN/DF	≤ 2.00	1.631	Good Fit
RMSEA	≤ 0.08	0.068	Good Fit
GFI	≥ 0.90	0.963	Good Fit
NFI	≥ 0.90	0.984	Good Fit
NFI	≥ 0.90	0.984	Good Fit
RFI	≥ 0.90	0.947	Good Fit
IFI	≥ 0.90	0.994	Good Fit
TLI	≥ 0.95	0.979	Good Fit
CFI	≥ 0.95	0.993	Good Fit

### Validity and Reliability

Validity and reliability tests were conducted in this study to ensure the accuracy and quality of the observed measurements. The validity test involved examining the factor loading of each variable, and the obtained results demonstrated that all indicators had a factor loading and a Composite Reliability (CR) value greater than 0.5 and 1.96, respectively. It indicates that the requirement for convergent validity was met, and the indicators forming latent variables exhibited one-dimensionality. Meanwhile, the reliability was assessed by evaluating the values of composite (construct) reliability and variance extracted (AVE). The obtained **reliability** value was above 0.70, with an AVE greater than 0.50, as presented in Table 3. These findings denote that the construct demonstrated high reliability.

**Table 3** Validity and Reliability Test

Variable	Indicators	Std Loading	AVE	Construct Reliability
Traditional environmental management practices	We try our best to reduce the consumption of hazardous production materials.	0.740	0.667	0.856
	We adopt measures to reduce the consumption of hazardous production materials.	0.947		
	We avoid using chemicals prohibited by regulations.	0.746		

**Table 3** Validity and Reliability Test (cont')

Variable	Indicators	Std Loading	AVE	Construct Reliability
Eco-product diversification	We need to introduce eco-batik products to the market.	0.775	0.692	0.899
	Our eco-batik products elevate local wisdom as the strength of our products.	0.914		
	We advertise eco-batik products in promotional media made for MSME.	0.840		
	We distribute eco-batik products in various cities.	0.791		
Performance	The quality of our products has increased.	0.769	0.765	0.928
	My profits have increased.	0.987		
	My turnover has increased.	0.891		
	I already feel the results of the return on investment.	0.837		

**Structural Model Assessment**

The hypothesis test was conducted using the critical ratio (CR) value derived from the SEM analysis to assess the significance of the causal relationship. Moreover, the coefficient of determination ( $R^2$ ) was employed to measure the extent to which the model could account for the variation observed in the endogenous variables.

**Table 4** Hypothesis Test

	Path coefficient	CR	p-value	R Square
Traditional environmental management practices → Eco-product diversification	0.903	7.606	***	0.549
Traditional environmental management practices → Performance	0.588	5.005	***	0.837
Eco-product diversification → Performance	0.437	4.946	***	

\*\*\* p < 0.05

The estimation of parameters for testing Hypothesis 1, which focused on the effect of traditional environmental management practices on eco-product diversification, showed a CR value of 7.606, surpassing the threshold of 1.96. It signified the acceptance of hypothesis 1 (H1) and implies that traditional environmental management practices exerted a significant influence on eco-product diversification. The result showed that enhanced implementation of environmental management practices by MSMEs stimulates entrepreneurs to engage in the creation of a diversified range of eco-products. Furthermore, the  $R^2$  value of 0.549 indicated that the traditional environmental management practices variable accounted for 54.9% of the variation observed in eco-product diversification.

The parameter estimates for testing Hypothesis 2, examining the impact of traditional environmental management practices on performance, demonstrated a CR value of 5.005, which also exceeded the threshold of 1.96, indicating the acceptance of H2. From the structural equation model, a positive relationship between latent variables was also observed. Therefore, it can be concluded that better environmental management practices had a significant positive impact on the performance of MSMEs.

The results of testing Hypothesis 3 revealed that the CR reached 4.946, meeting the acceptance standards of H3, because the value obtained was greater than 1.96 and the significant value was  $<0.05$ . In testing this hypothesis, the structural equation also showed a positive relationship between latent variables, confirming that eco-product diversification had a significant positive influence on performance. The R<sup>2</sup> value obtained from this test was 0.837, meaning that the variables of traditional environmental management practices and ecological product diversification could collectively explain 83.7% of the observed efficiency variation.

Moreover, the regression coefficient analysis uncovered an indirect relationship between traditional environmental management practices and performance, mediated by eco-product diversification. The calculated value for this indirect relationship was 0.345 ( $0.741 \times 0.466$ ), smaller than the direct effect represented by a regression coefficient of 0.514. This finding indicated that eco-product diversification did not serve as a mediating factor between the other two observed factors.

## Discussion

This study provides evidence supporting the idea that ecological product diversification can contribute to improved business performance. This shows that, in the case of batik, products that reflect local wisdom and are marketed, advertised and distributed as environmentally friendly options can result in improved quality and increased profits, revenues and return on investment. These results are in line with research by Njuguna (2018) which shows the positive impact of product diversification on company profits and performance. There is no doubt that replacing existing products with more environmentally friendly alternatives can reduce harmful impacts on the environment. It can also improve resource use efficiency, save raw materials, and reduce pollution costs. Companies that adopt environmentally friendly products have the potential to generate greater profits while building an environmentally friendly image, realizing product diversification, and expanding market share in the future (Cai & Li, 2018).

In the context of batik MSMEs, adopting traditional environmental management practices and diversifying into ecological products can bring several benefits. First, it can improve the overall image of MSMEs by eliminating negative perceptions of the batik production process which is detrimental to the environment. It also has the potential to increase profits, revenue and ROI. Environmentally friendly practices like this are very important, especially for industries with high levels of pollution (Ryszko, 2016). Diversifying into "green" batik products can also help save costs, such as reducing raw material expenditure, saving water, saving energy (electricity, firewood and gas), and water

treatment (Yaacob et al., 2015). Environmentally friendly product diversification or the development of new environmentally friendly products often involves three important environmental issues: materials, energy, and pollution. The impact can be seen at various stages of the product life cycle (PLC), including production, use, and product disposal. First, the manufacturing process refers to the raw materials and energy sources used with recyclable, recyclable, and biodegradable materials or packaging used during engineering improvements. Therefore, energy performance becomes very important in the use of renewable electricity sources. In terms of product use, environmentally friendly products reduce power consumption or product operation, including the use of renewable energy sources. The focus on pollution has encouraged groups to adopt pollution removal technologies to reduce pollution in products or by-products, which have very little impact on the environment. As a result, Dangelico and Pujari (2010) initiated research on environmentally friendly products and described ecological product innovation as the development of products that use less raw materials and extra strength to reduce production in large quantities.

## **Conclusion**

Based on the results and discussion, it can be concluded that the application of traditional environmental management measures can effectively promote the development of diversified ecological products. This emphasizes the idea that a strong process will produce good results. It is important to know that companies can only automatically create environmentally friendly products by reducing the use of hazardous materials during the production process. This is a competitive advantage, which allows companies to market, advertise and distribute their products from an environmentally friendly perspective.

Moreover, when traditional environmental management measures are implemented at a higher level, they can help improve economic and environmental performance (Geng et al., 2021). Conscious efforts to minimize the consumption and use of hazardous materials can ultimately result in improved product quality, increased profits and overall business performance. This is possible because in the current market, consumers tend to prefer products from companies that prioritize concern for the environment compared to products that use hazardous materials and are harmful to the environment.

The role of environmentally friendly product diversification in mediating the relationship between traditional environmental management practices and the performance of MSMEs (micro, small and medium enterprises) is an important concept in bridging the gap between business activities, traditional activities which may be less sustainable, and environmental activities, which are increasingly urgent demand. Pressure to protect the environment is increasing, driven by government regulations and the demands of increasingly environmentally conscious consumers. MSMEs that do not adapt their operations to environmental requirements may face setbacks in growth and, ultimately, business sustainability. This research still has limitations, namely the research object only focuses on diversification of batik products. Therefore, for further research, product

diversification refers to the strategy of developing various products or services covering various categories.

Even though this study offers treasured data, it is crucial to recognize its obstacles. First, the pattern used was confined to small and medium corporations in the batik industry, which have exclusive characteristics compared to different SMEs. To boost the generalizability of the outcomes, future studies must bear in mind that they consist of samples from extraordinary industries or MSME sectors. Another problem with this examination is that it was miles based on past sectional records. Consequently, subsequent studies should use longitudinal statistics or in-depth qualitative techniques to seize the interplay, improvement, and effect of diversification techniques and company performance on environmental management practices. Ultimately, it ought to be noted that this observation did not verify the mediating position of natural product diversification. To fill this hole, future studies ought to look at environmental innovation as a mediating variable by means of analyzing the influence of traditional environmental management practices on firm overall performance.

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