Determining Factors for the Success of Green Innovation: Technology, Organizational, and Environmental Readiness On the Performance of MSMEs in Solo Raya

Safira Ayu Putri Ramadhani[1], Frank Aligarh [2]
[1]Islamic Accounting, Faculty of Islamic Economics and Business, Raden Mas Said State Islamic University of Surakarta, Indonesia
[2]Sharia Accounting, Faculty of Islamic Economics and Business, Raden Mas Said State Islamic University of Surakarta, Indonesia, Indonesia

Email: safiraayuputriramadhani244@gmail.com

ABSTRAK*: Penelitian ini mengkaji seberapa siap perusahaan UMKM terhadap inovasi hijau berdasarkan kerangka teknologi, organisasi, dan lingkungan. Penelitian ini bersifat kuantitatif.Penelitian ini melibatkan 156 pemilik dan pengelola usaha mikro, kecil, dan menengah (UMKM) di Solo Raya untuk menyelidiki pengaruh kesiapan teknologi, organisasi, dan lingkungan terhadap kinerja UMKM. Penelitian ini menggunakan survei dengan membagikan kuesioner kepada para pemilik/manajer UMKM di daerah Solo Raya. Metode Partial Least Squares (PLS) digunakan bersama dengan software Smart-PLS versi 3 untuk menganalisis data yang dikumpulkan untuk mengevaluasi hubungan antara teknologi, organisasi, lingkungan, dan kinerja keuangan. Hasil penelitian menunjukkan bahwa inovasi hijau dipengaruhi secara signifikan positif oleh kompatibilitas teknologi,Kepedulian lingkungan, dan dukungan pemerintah. Selain itu, inovasi hijau juga dipengaruhi secara signifikan positif oleh kinerja keuangan. Penelitian ini juga menemukan beberapa keterbatasan, seperti kemungkinan seperti potensi kurang dapat di generalisasikan ke daerah lain karena penelitian dilakukan hanya pada UMKM di Solo Raya. Terlepas dari keterbatasan ini, penelitian ini memberikan kontribusi penting terhadap pemahaman tentang bagaimana Kesiapan teknologi, Organisasi, dan Lingkungan dapat mempengaruhi kinerja pada UMKM.*

Kata kunci*: Inovasi Ramah Lingkungan, Kompatibilitas Teknologi, Kepedulian Lingkungan, Dukungan Pemerintah, Kinerja Keuangan.*

ABSTRACT*: This study examines how ready MSME companies are for green innovation based on the framework of technology, organization, and environment. This study is quantitative. This study involved 156 owners and managers of micro, small, and medium enterprises (MSMEs) in Solo Raya to investigate the effect of technological, organizational, and environmental readiness on MSME performance. This study used a survey by distributing questionnaires to MSME owners/managers in the Solo Raya area. The Partial Least Squares (PLS) method was used together with Smart-PLS software version 3 to analyze the data collected to evaluate the relationship between technology, organization, environment, and financial performance. The results showed that green innovation was significantly positively influenced by technological compatibility, environmental concern, and government support. In addition, green innovation was also significantly positively influenced by financial performance. This study also found several limitations, such as the possibility of potential for less generalizability to other areas because the study was conducted only on MSMEs in Solo Raya. Despite these limitations, this study makes an important contribution to the understanding of how Technological, Organizational, and Environmental Readiness can influence performance in MSMEs.*

Keywords*: Green Innovation, Technology Compatibility, Environmental Concern, Government Support, Financial Performance.*

1. INTRODUCTION

There has been an increase in environmental pollution in the Bengawan Solo river area. The Head of the Environmental Protection and Management Division of the Surakarta City Environmental Service (DLH) appealed, including small industries, to be guided (news.republika.co.id). This condition shows that environmentally friendly innovation is still included in the "neglected" category in the literature or academic research. Thus, this topic has not received enough attention from researchers. Environmental issues cannot be solved by large companies alone, but MSMEs that have a chain impact on community involvement also have an important role. Green innovation practices are the key to how MSMEs can contribute directly to financial performance. With that, these innovative efforts enable MSMEs to comply with increasingly stringent environmental laws and regulations, on the other hand it also helps them to improve operational efficiency (Zhang, 2020) .

Several studies have shown that green innovation has a positive impact on MSME competitiveness, economic performance, and environmental protection. Zhang's study in 2020 showed that in addition to providing primary benefits, green innovation also produces additional benefits, such as reducing the environmental costs of products. This creates a "double benefit" (zhang, 2020). As a systematic effort, to implement green innovation effectively, MSMEs need to make well-planned efforts. This involves creatively combining resources owned by MSME owners (internal) and resources from outside (external). This process also requires the development of MSME owners' capabilities, such as skills or technology, as well as capital investment to support the implementation of these innovations (Lampikoski, 2014) . Not all companies will get the desired results because green innovation has risks and uncertainties (Roper, 2016) . To achieve sustainability, companies must prepare themselves for green innovation by gaining the ability and independence of system innovation readiness resources in MSMEs. However, only a few studies have looked at it from the perspective of environmentally friendly MSME innovation (Lokuge, 2014) .

This study fills the gap by investigating green innovation readiness in relation to the determinants of green innovation success. The purpose of this study is " to determine how prepared MSMEs are in facing green innovation." Based on the technology, organization, and environment (TOE) framework, a research model is developed that illustrates how technological, organizational, and environmental readiness affect green innovation, which impacts short-term and long-term outcomes. The results are likely to provide benefits from both theoretical and practical perspectives in planning and implementing green innovation. This gap raises important issues about firms' engagement in green innovation and the need for measurable assessment tools. Many MSMEs have not actively participated in sustainable or green innovation, which could be due to a lack of awareness, incentives, or clear measurement tools to assess their environmental impact. As mentioned, the lack of empirical research on such tools indicates a gap in the scientific literature, placing this topic in the category of "neglect." A measurable assessment tool is needed to provide guidance for MSMEs on how they can contribute to green innovation . Empirical research in this regard is essential to fill the gap in existing knowledge, help MSMEs make more data-based decisions, and encourage more adoption of green technologies across Solo Raya (Zhang, 2020) .

Business practices that are in line with environmental issues require the ability of each MSME to innovate. Green innovation is needed by MSMEs so that circular business continuity can be realized. Green innovation practices certainly require driving factors, this study attempts to uncover what determines the success of MSMEs in carrying out green

innovation. This study will use the TOE (Technological Organizational Environmental) framework in testing the determinants of green innovation. The TOE framework was initially used to test technology adoption, but the development of TOE framework research can be used to identify the adoption of green innovation. Technology factors to test the ability of MSMEs to maximize the potential of technology to support green innovation. Organizational factors are used to test how much the company's internal ability is to carry out green innovation practices. Meanwhile, environmental factors are related to external support from the government, society and regulations in adopting green innovation. Furthermore, after knowing the determinants of green innovation practices, this study attempts to reveal their impact on *Financial Performance* (Yin, 2023) .

This research is important to study because: 1) Research related to environmental issues only focuses on large companies, whereas MSMEs have a much greater contribution to environmental problems, so this study will explore MSMEs more, 2) this study will test not only the determinants of green innovation adoption but also test its impact on financial performance, 3) this study will expand the use of the TOE framework which is usually used for the context of technology adoption, in this study it is used for the context of green innovation adoption. Therefore, this study aims to analyze the role of green innovation in increasing the effectiveness of technological, organizational, and environmental readiness for micro, small, and medium enterprises (MSMEs). Testing this relationship will help understand the complex dynamics that shape the success of green innovation in the context of MSMEs. The data to be sought includes specific measurements of technological, organizational, and environmental readiness in MSMEs, and can improve their financial performance after implementing green innovation (Chen, 2012) .

This research is expected to have theoretical contributions related to the development of innovation models that can be integrated with the TOE framework and green organizational culture. This research also contributes to the development of survey instruments in the context of MSMEs so that in the future researchers will not only focus on large companies but also MSMEs. This research is also expected to contribute practically and managerially where factors such as government policy support, and the role of society will greatly determine the success or failure of MSMEs in carrying out green innovation. Furthermore, the government must also make strict regulations related to environmental issues so that the success of green innovation can be achieved more easily (Díaz, 2015; Pociovălişteanu, 2015) .

2. LITERATURE REVIEW

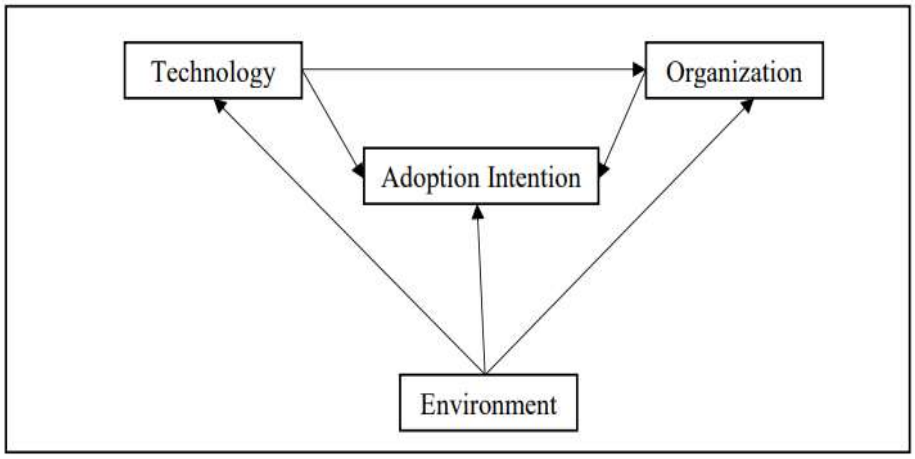
2.1 Technology-Organization-Environment (TOE)

Tornatzky and Fleischer first introduced the Technology-Organization-Environment (TOE) concept in 1990 to describe the phenomenon of technology adoption within an organizational unit of analysis (Aligarh, 2023). Some examples of TOE that continue to innovate are (Khayer, 2020; Putratama, 2020; Qalati, 2021; Tajudeen, 2018) The TOE framework explains that the conditions of technical progress, organizational structure, and industry environment affect how acceptable an information system is. In addition, information system adoption (TOE) is the only theoretical framework that takes into account all the driving forces that can influence information system adoption efforts, according to (Owusu, 2020) The technology development (TOE) framework typically combines organizational considerations, environmental factors, and technological

factors (Qalati, 2021). Technological factors include relevant internal and external technologies of the organization. Organizational factors include size, scope, managerial structure, and internal resources. Industry, competitors, and legislation are examples of environmental factors.

Research (Aligarh & Falikhatun, 2023) provides an explanation of Technology-Organization-Environment (TOE) is a structure used to assess organizational components that influence technology adoption (Alsaad, 2019; Awa, 2017; DaMonte, 1987). The approach in this method prioritizes organizational adoption over individual adoption (Khayer, 2020). TOE includes technological, organizational, and environmental factors (Gillani, 2020; Shree, 2021). Technology is related to how companies view the advantages, complexities, and benefits of the technology components used (Hussain, 2021; Naushad, 2020).

Figure 1. TOE framework



Source: Totnatzky & Fleischer, (1990)

2.2 Diffusion of Innovation Theory (IDT)

Diffusion of Innovation Theory (IDT) which was first introduced in 1962, was refined by Rogers in 1995. The theory of diffusion of innovation (IDT) supports the framework of technological innovation adoption (TOE), In general, the Theory of Diffusion of Innovation is a theory that contains new ideas or concepts and technologies that spread in a culture. Basically, this theory consists of two words, namely diffusion and innovation. the word diffusion means the spread of something in the form of culture, technology, or ideas from one party to another. Meanwhile, innovation means the introduction or introduction of new things, namely an update (Tajudeen, 2018) . The existence of technological readiness is related to the possibility of an MSME adopting environmentally friendly innovation technology smoothly as an important organizational asset. The value of these technological resources is largely determined by how well these resources work together with other technologies used and facilitate environmentally friendly innovation activities. It is designated as IDT compatible. These properties are necessary and sufficient conditions for technology adoption. The extent to which a new technology is adopted depends largely on its technological compatibility (Zhang, 2020) .

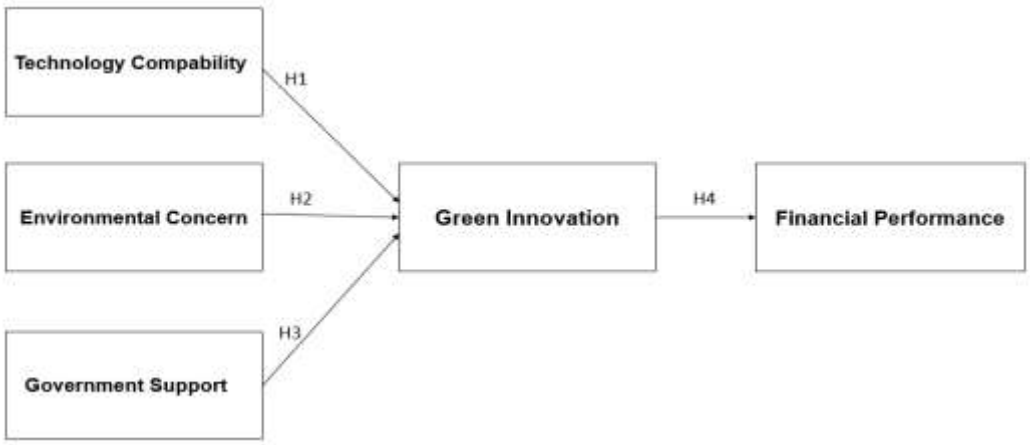
2.3 Institutional Theory

Institutional theory argues that institutionalized organizational processes undergo a series of adaptive processes that are less influenced by individual members. These adaptive processes lead to (Isomorphism) uniformity or similarity in the way organizations operate that is a result of copying best practices or because of command norms or regulations. Therefore, adaptation encourages organizations to adopt similar structures, strategies, and strategies. (DiMaggio, 1983) argues that the presence of Institutional Theory in organizations and the environment can encourage convergent business practices (Dubey, 2017) . The need for environmental readiness is related to external pressures that encourage a company to carry out environmentally friendly innovation. Institutional theory states that these forces motivate organizations to improve measurable performance for sustainability benchmarks. Specifically, business activities and operations must comply with legal and governmental requirements regarding environmental protection. As a foundation for corporate sustainability, such a policy environment serves as an important condition for green innovation. Rather than passively meeting requirements, an organization may actively meet consumer demand for environmentally friendly products/services (Zhang, 2020) **.**

Model Development

The framework in this study is built on previous foundations to help analyze the issues to be discussed. This study uses 3 independent variables and 2 dependent variables .

Figure 2. Research Model



3. Hypothesis Development

The Influence of *Technology Compatibility* on *Green Innovation*

Technological Compatibility is something that supports the successful implementation of environmental innovation because it reduces technical barriers and adaptation costs and can help companies integrate green solutions without requiring major modifications, ultimately increasing the tendency of companies to innovate in a more environmentally friendly direction . *The Diffusion of Innovation Theory* (IDT) explains that one of the main factors influencing the adoption of innovation is *compatibility* , namely the suitability of innovation with the values, experiences, and needs of potential users (Siyal, 2023) . Technological readiness is related to the possibility of a company to smoothly adopt environmentally friendly innovation technology as an important organizational asset.

The value of these technological resources is largely determined by how well they work with other technologies used and facilitate environmentally friendly innovation activities. Symbolized as compatibility according to IDT (Zhang, 2020) .

Research conducted by (Li, 2017) stated that his research has a positive effect on innovation, such as green technology, which has a high level of compatibility with existing systems or technologies, users will be more likely to adopt it because with high compatibility as explained by Rogers, high compatibility accelerates the process of innovation diffusion because compatible innovations are more in line with existing needs and structures, thus minimizing resistance to change. This can increase the readiness and confidence of the organization in implementing green innovation (Zhu, 2013) . Based on the discussion above, this study aims to test the following hypotheses:

H1. Technology Compaibility has a positive effect on Green Innovation

The Influence of *Environmental Concern* on *Green Innovation*

Innovation capacity in an organization will be more effective in driving green innovation if the organization is motivated. Because green innovation requires a lot of time and effort, employees tend to resist change unless they have an attitude or mentality that supports the environment. Several studies have shown that companies that are more concerned about the environment tend to be more innovative. Therefore, environmental concern is an important factor for employees to be fully involved in green innovation. In this context, innovation capacity and environmental concern are considered two key elements that indicate an organization's readiness to implement green innovation. Environmental Concern is a meta-analytic study on the factors driving green innovation found that companies with higher levels of environmental concern tend to be more innovative (JAWABREH, 2019) . Therefore, environmental concern is a sufficient condition for employees to be fully involved in green innovation activities (Hojnik, 2016). Because it is in accordance with the values described in *Institutional Theory).*

So *the institutional theory* (Institutional Theory) explains that organizations tend to adopt certain practices, structures, or innovations in response to institutional pressures, such as social norms, regulations, and stakeholder expectations. In this context, environmental concern can be viewed as a form of institutional pressure that encourages companies to adopt environmentally friendly practices and green innovation. Previous Research Also explained by (Chen, 2013) that *Environmental concern* or concern for the environment is the level of attention and awareness of individuals or organizations towards environmental issues, such as climate change, pollution, and natural resource conservation. When *environmental concern* is high or the results are positive, individuals or organizations are more likely to support and adopt environmentally friendly practices, including *Green Innovation* . Based on the discussion above, this study aims to test the following hypotheses:

H2. Environmental Concern has a positive effect on Green Innovation

The Influence *of Government Support* on *Green Innovation*

Government support is any form of assistance or support provided by the government to individuals, companies, or organizations to support economic activities, innovation, or certain goals (Anwar, 2020). The finding that "government support" has a significant

influence on green innovation can be analyzed through the lens of institutional theory. *Institutional theory* explains that organizations are influenced by various external pressures from regulations, social norms, and the industrial environment that motivate them to adopt certain practices or innovations. In this case, government support acts as one of the main coercive pressures that encourage companies to carry out green innovation. This study is in line with (Chen, 2006) , the study shows that proactive government policies in supporting green innovation significantly increase the adoption of environmentally friendly technologies among companies. Based on the discussion above, this study aims to test the following hypotheses:

H3. Government Support has a positive influence on Green Innovation

The Influence of *Green Innovation* on *Financial Performance*

Green Innovation (GI) is the process of developing and implementing new ideas, technologies, products, services, or practices that aim to improve resource efficiency and reduce negative impacts on the environment. With the aim of supporting environmental sustainability to meet economic and social needs (Rui & Lu, 2021). In today's business environment, green innovation is both a challenge and an opportunity for companies that need to achieve business goals and fulfill social responsibilities. To minimize risks and maximize benefits, organizations need to assess themselves how well they are prepared for green innovation. This is related to how ready an organization is for green innovation in terms of technical, internal, and external conditions. Only when a company is ready to face all aspects can the company successfully implement green innovation and take full advantage of it.

Green innovation has an influence on financial performance that can be analyzed using *institutional theory* . *Institutional theory* emphasizes that companies are influenced by various external pressures, such as social norms, regulations, and industry practices, which encourage them to adopt innovations and practices that can increase their legitimacy and sustainability in the market. In this context, green innovation is not only seen as a response to institutional pressures, but also as a strategy that can improve a company's financial performance. Previous research (Hart, 1996) found that firms that adopted green innovations experienced improvements in financial performance, largely due to the increased reputation and consumer loyalty driven by environmentally friendly practices. Based on the discussion above, this study aims to test the following hypotheses:

H4. Green Innovation has a positive effect on Financial Performance

3. METHOD

3.1 Population and Sample

In addition to functioning as an observation target to be tested, the population can also be defined as a collection of research objects that match the characteristics of the researcher. The researcher selected 156 respondents from Solo Raya, including business owners/managers of MSMEs. The sampling technique with certain considerations is based on the characteristics of the subjects who will be used as research samples . Sampling in this study was carried out using a *purposive sampling technique* based on certain criteria: 1) Solo Raya MSME owners, 2) Creative Industry, 3) MSMEs that have implemented Technology.

3.2 Instrumentation/Data Collection

This study used a questionnaire during the data collection process. Due to the large number of diverse MSMEs in the area, this study was conducted in Solo Raya and Central Java which are references for the creative economy center of MSMEs in Indonesia. Therefore, the selected respondents, namely MSME owners or managers, will represent all MSME responses. The data used in this study are primary data obtained by distributing questionnaires to research subjects. Respondents can rate the answers they choose using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). This study distributed questionnaires directly during the data collection process. Respondents were selected based on their knowledge of the topic and their willingness to engage with it. The demographic characteristics used in this study were industry, gender, company size, and company age.

3.3 Data Analysis/Estimation Model/Variable Measurement

In this study, the Partial Least Squares (PLS) data analysis technique was used, which was carried out using SmartPLS software. The PLS method helps in the analysis of various latent variables, provides accurate estimates, and more often analyzes complex models (Hair, 2020) . In this study, both inner and outer models were used (Alkhwaldi, 2023 ; Ratnasari et al., 2021).

The variance-based Structural Equation Modeling (SEM) or Partial Least Squares (PLS) approach is the best method because it can test multidimensional construct relationships simultaneously. Other statistical methods, such as multiple regression or multivariate analysis of variance, are limited to analyzing the relationship between each construct separately (Edeh, 2023 ; Khayer, 2020) . In addition, variance-based PLS-SEM is more suitable because the purpose of the study is to develop theory rather than test theory.

The outer model is a PLS measurement used to determine the value of latent variable indicators (Ratnasari, 2021) . These values include validity (convergent and discriminant validity) and reliability (Kasri, 2019). The convergent validity test is assessed through standard factor loading, Cronbach's ÿ, Composite Reliability (CR) with a recommended weight of 0.7, and an average variance Extraction (AVE) value of 0.5 which shows good results (Al-Okaily, 2023 ; Balle, 2020).

Discriminant validity is used to ensure that each concept of each latent variable is different from other variables, assessed through the Fornell-Larcker (FLT) test criteria where the AVE value of each latent variable is greater than the others (Chetioui, 2023 ; Gunawan, 2023 ; Rahi, 2021) . Reliability testing shows reliability if the loading factor on the latent variable has a weight> 0.6 and the Dillon-Goldstein rho ratio> 0.7 (Troise, 2020).

Inner model is an analysis technique used to test the hypothesis (Hwang, 2020) . This model is oriented towards several measurements to assess the hypothesis such as Average Path Coefficient (APC), Average R-square (ARS), Average Adjusted R-square (AARS), Average Block VIF, Average Full Collinearity VIF (AFVIF), Path Coefficient with a significant level of P.

4. RESULTS AND DISCUSSION

Results

Respondent Profile

Table 1 presents information about the research respondents. Based on the respondent data, 60.2% were female and 39.7% were male. The majority of respondents were aged 20-30 years, which was 42.3%.

Table 1. Respondent Profile

Characteristics	Category	Total	Presentation
Gender	Man	62	39.7%
	Woman	94	60.2%
Age	20 – 30	66	42.3%
	31- 40	34	21.7%
	41- 50	37	23.7%
	>50 years	8	5.2%
Type of Business	Culinary	60	38.4%
	Wood Processing Furniture	40	25.6%
	Fashion	37	23.7%
	Craft	14	8.97%
	Printing	1	0.64%

Source: Data analysis

Measurement Model Results (Outer Model)

This study tested (convergent and discriminant validity) and reliability. The results showed that all items were valid and met the criteria. As seen in Table 2, the loading factor values of all items were above 0.7. In addition, the reliability test was seen from the Cronbach's Alpha and Composite Reliability values which were above 0.7. The convergent test was seen from the Cross Loading above 0.7. Therefore, it can be concluded that all constructs in this study are reliable.

Table 2. Convergent Validity and Reliability

Variables	Indicator	Cross Loading	Cronbach's Alpha	Rho_A	Composite Reliability	AVE
Technology Compatibility	COMP1 To support environmentally friendly businesses , my company/enterprise has used appropriate information technology.	0.898	0.857	0.858	0.913	0.778
	COMP2	0.898				

	To support environmentally friendly businesses, my business/enterprise already using information technology that is capable of meeting operational needs.					
	COMP3 To support environmentally friendly businesses, my company/enterprise has used information technology that is able to meet the needs of suppliers and customers.	0.850				
Environmental Concern	EC1 My business always fosters a green (environmentally friendly) culture among employees **.**	0.802	0.838	0.846	0.891	0.673
	EC2. My business always focuses on environmental protection aspects in running the business.	0.855				
	EC3 My business is always oriented towards sustainable business	0.762				
	EC4 My business strives to protect the environment and sustainability in the future	0.858				
Government Support	GP1 My business/enterprise has complied with environmental regulations/policies.	0.907	0.852	0.863	0.910	0.771
	GP2 My business complies with environmental and pollution regulations	0.893				
	GP3	0.833				

	My business is always looking for updates regarding regulations regarding the environment and environmental pollution.				
Green Innovation	GIN1 My business as a whole has used environmentally friendly business practices.	0.755	0.899	0.903	0.919
	GIN2 My business already uses environmentally friendly raw materials	0.826			
	GIN3 **My** business has considered product recycling.	0.788			
	GIN4 My business has produced less pollution/waste during production.	0.756			
	GIN 5 My business has been able to recycle unused materials for a long time. production.	0.710			
	GIN 6 In carrying out business activities, my company/enterprise has paid attention to environmental aspects.	0.758			
	GIN 7 In carrying out business activities, my company/company has carried out supervision regarding the potential for environmental pollution.	0.720			
	GIN 8 In carrying out business activities, my company/company has tried to organize the supply chain to remain	0.803			

	environmentally friendly.				
Financial Performance	FP1 In the last 3 years, my business has experienced an increasing trend in net profit.	0.928	0.882	0.888	0.927
	FP2 In the last 3 years, my business has experienced an increasing trend in sales/turnover.	0.899			
	FP3 In the last 3 years, my business has succeeded in reducing the amount of business debt.	0.872			

Source: Data analysis

Table 3 shows the discriminant validity test, that all constructs meet the Fornell-Lacker Test (FLT) criteria, when the value of the same variable is higher than before, then it can be said to be valid.

Table 3. Discriminant Validity

VARIABLES	E.C.	FP	GS	GI	TC
E.C.	0.820				
FP	0.546	0.900			
GS	0.698	0.520	0.878		
GI	0.700	0.500	0.717	0.765	
TC	0.730	0.533	0.653	0.736	0.882

Source: Data analysis

Structural Model Test Results (Inner Model).

Based on the results of hypothesis testing, if the value <0.05 then it is said to be supported. So all hypotheses show a positive and significant influence on green innovation and financial performance, as seen in Table 4.

Table 4. Structural Model Test

Hypothesis	Original Sample	T Statistics	p-Values	Information
H1: TC -> GI	0.377	4.109	0.000	Supported
H2: EC -> GI	0.189	2.014	0.045	Supported
H3: GS -> GI	0.339	3,513	0.000	Supported
H4: GI -> FP	0.500	5,767	0.000	Supported

Source: Data analysis

Discussion

First, H1 The results of the hypothesis test show that Technology Compatibility has a positive and significant effect on Green Innovation. According to research (Firdausyi, 2023) If the technological capabilities owned by MSMEs are getting better, they will be able to increase the implementation of MSME green innovation. This research is in line with *the Diffusion of Innovation Theory* (IDT), This is evidenced by the test results which show a p-value of 0.000 <0.05. because this theory explains that one of the main factors influencing the adoption of innovation is *compatibility* , namely the suitability of innovation with the values, experiences, and needs of potential users. According to research (Li, 2017) When an innovation, such as green technology, has a high level of compatibility with existing systems or technologies, users will be more likely to adopt it because with high compatibility as explained by Rogers in 2003, namely high compatibility accelerates the process of innovation diffusion because compatible innovations are more in line with existing needs and structures, thus minimizing resistance to change. This can increase the readiness and confidence of MSMEs in implementing green innovation (Zhu, 2013). Technological capacity is a characteristic that enables a firm to initiate innovative competencies through the use of advanced technologies, patents, copyrights, research and development, and specialized knowledge. (Liu, 2010). MSMEs that have better technological capabilities will have the ability to outperform their competitors (Tariq, 2017).

Second, H2 *Environmental concern* has a positive effect on *Green Innovation.* This is proven by the test results which show a p-value of 0.045 <0.05. According to Research (Elysabeth, 2023) This shows that good environmental innovation is carried out by MSMEs to produce good environmental performance. This is likely to have an impact on environmental performance because companies implement better environmental performance in their production processes and innovation in environmentally friendly products reduces negative impacts on the environment. This study is in line with research conducted by (Fang, 2022) which shows the influence of Green Innovation on Environmental performance. This can also be analyzed using institutional theory.

Institutional theory explains that organizations tend to adopt certain practices, structures, or innovations in response to institutional pressures, such as social norms, regulations, and stakeholder expectations. In this context, environmental concern can be

viewed as a form of institutional pressure that encourages MSMEs to adopt environmentally friendly practices and green innovations. In one of his studies (Chen, 2013) it has a significant positive impact. When *environmental concern* is high, individuals or organizations are more likely to support and adopt environmentally friendly practices, including *Green Innovation* . However, environmental performance variables also have a role and impact on the competitive advantage of an MSME. This is what an MSME entrepreneur or businessman must do to gain a competitive advantage in this tight business competition (Yuha, 2023).

Third, H3 Government Support has a positive effect on Green Innovation. can be analyzed through the lens of institutional theory. This is evidenced by the test results showing a p-value of 0.000 <0.05. Institutional theory explains that organizations are influenced by various external pressures from regulations, social norms, and the industrial environment that motivate them to adopt certain practices or innovations. In this case, government support acts as one of the main coercive pressures that encourages MSMEs to carry out green innovation. Research conducted (Horbach, 2008) also found that government support has proven effective in increasing the frequency and intensity of green innovation in the industrial sector. Therefore, government policies, such as subsidies and strict environmental regulations, are key factors that encourage German companies to innovate in the field of environmentally friendly technologies.

According to Thomas (2024) research conducted by the Government Institute for Entrepreneurship in 2018 shows that government support and policies can help more entrepreneurs. This study will evaluate various government programs and policies that support entrepreneurial businesses. (Acs, 2013) suggests that government support can include various policies, such as fiscal incentives, research and development funds, which encourage innovation and business growth. In entrepreneurship, (Welter, 2019) discusses how important government support is to create an environment that supports new businesses growing and gives entrepreneurs access to the resources they need. (Audretsch & Belitski, 2013) evaluate how government policies impact entrepreneurship and innovation. They highlight that government support can play a significant role in shaping an environment that supports economic growth.

Fourth, H4 Green Innovation has a positive effect on Financial Performance. This is proven by the test results showing a p-value of 0.000 <0.05. This can be analyzed with *institutional theory* , in this theory companies are influenced by various external pressures, such as social norms, regulations, and industry practices, which encourage them to adopt innovations and practices that can increase their legitimacy and sustainability in the market. In this context, green innovation is not only seen as a response to institutional pressures, but also as a strategy that can improve financial performance in MSMEs. Previous research (Hart, 1996) found that companies that adopt green innovation experience an increase in financial performance, largely due to increased reputation and consumer loyalty driven by environmentally friendly practices.

It can be concluded that H4 is supported. According to Research (Fabiola, 2022) To achieve company goals, green innovation is one way to maximize profitability (Agustia, 2019). In practice, Green Innovation is the development of environmentally friendly products or procedures that are efficient, with a focus on reducing the use of resources or energy. This allows MSMEs to reduce costs and increase profits, which in turn will have an impact on improving the company's financial performance (Küçükoğlu, 2015) . Research conducted by (Dewi, 2020) also shows that Green Innovation has a positive effect on improving financial performance.

5. CONCLUSION

This finding answers related questions environmental issues that only focus on large companies, whereas MSMEs have a much greater contribution to environmental problems, this study will explore MSMEs further. And when the study explored MSMEs, the results of the study showed that all hypotheses were supported, so these results were consistent with previous studies. This study revealed that after testing the adoption of green innovation, the impact generated was significant on financial performance. This study also contributes to the Diffusion of Innovation Theory (IDT), which states that technological expertise is one of the determining factors for achieving success in the digital era. The ability to adapt quickly to rapid technological and environmental changes will greatly determine the competitiveness of small businesses. This is also relevant to institutional theory , which emphasizes the ability to respond to and handle a rapidly changing environment. The ability of small businesses to identify technological opportunities related to customer needs and optimize internal resources to take advantage of potential digital platforms, such as social media and e-commerce. The findings of this study provide guidance on how companies can be better prepared for environmentally friendly innovations and make the most of them. To cope with the changes that occur, it is important for companies implementing green innovation to evaluate their organizational, technological and environmental readiness, and formulate appropriate strategies. This proactive approach (e.g., reducing employee resistance by increasing environmental awareness) helps companies mitigate risks in green innovation. SMEs at different levels of green innovation readiness can adjust the way they implement green innovation. For companies with relatively low levels of readiness, gradual implementation is preferred, while those with relatively high levels of readiness may be more ambitious. Self-assessment of a company's green innovation readiness helps it establish a mechanism to track the evolution of technology, internal resources and external conditions related to green innovation. Following a possible management approach, this allows organizations to formulate a green innovation implementation strategy.

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