

The Role of Accounting Information Systems in Encouraging the Implementation of Green Accounting in MSMEs in Border Areas

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ABSTRACT

This study aims to analyze the influence of accounting information system quality on green accounting and the sustainability performance of MSMEs and to examine the mediating role of green accounting in this relationship. Furthermore, this study also aims to map the priority of indicator improvements using the Importance Performance Analysis (IPA) method. The study uses a quantitative approach with an explanatory research design. The respondents consisted of 43 MSMEs in the culinary and production sectors in Sambas Regency. Data collection techniques were carried out through questionnaires using a Likert scale and analyzed using IBM SPSS Statistics. Data analysis was carried out through validity and reliability tests, linear regression, Baron and Kenny mediation tests, Sobel tests, and IPA Cartesian diagram analysis. The results of the study indicate that the quality of accounting information systems has a positive and significant effect on green accounting and the sustainability performance of MSMEs. Furthermore, green accounting also has a positive and significant effect on sustainability performance. The results of the mediation test indicate that green accounting fully mediates the

relationship between the quality of accounting information systems and the sustainability performance of MSMEs. The results of the IPA analysis indicate that system quality, business profitability, and social aspects (people) are the top priorities for improvement, while information quality, environmental cost identification, material and energy management, and business sustainability need to be maintained. This research provides a theoretical contribution by integrating the concepts of accounting information system quality, green accounting, and sustainability performance in the context of MSMEs in border areas. Practically, the research results can serve as the basis for recommendations for MSMEs in improving the quality of their accounting information systems and implementing green accounting to support business sustainability.

1. INTRODUCTION

Global economic developments require business actors not only to focus on profit but also to pay attention to sustainability aspects (Reita Albariah, 2025). The concept of sustainability, which includes economic, environmental, and social dimensions, has increasingly become a major concern in business practices, including in the micro, small, and medium enterprises (MSMEs) sector. MSMEs are considered a strong pillar of the economy and play a strategic role in supporting sustainable development however, in practice, they still face various limitations, particularly in managing financial and environmental aspects (Yolanda, 2024). One of the efforts that can be made to improve MSME sustainability performance is the implementation of high-quality accounting information systems. A high-quality Accounting Information System (AIS) is capable of providing accurate, relevant, and timely financial information, thereby facilitating effective decision-making for both internal and external purposes (Wahtan et al., 2025). In production- and culinary-based businesses, AIS quality also has the potential to assist business owners in identifying and managing operational costs, including costs related to environmental aspects (Nurhidayah et al., 2025). Along with the increasing awareness of environmental issues, the concept of green accounting has become increasingly relevant in modern accounting practices (Putra & Sisdianto, 2024). In the context of border areas, the role of MSMEs becomes increasingly important as drivers of the local economy. Kabupaten Sambas in West Kalimantan Province is one of the Indonesia Malaysia border regions with considerable economic potential, particularly in the agricultural, fisheries, and food-processing sectors. The presence of the Aruk Border Crossing Post has become a catalyst for increasing community economic activities and

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opening opportunities for cross-border trade (Ulya et al., 2025). The number of MSMEs in Kabupaten Sambas also shows a significant contribution to the regional economy. It is recorded that there are more than 35,000 MSME units, predominantly micro-enterprises operating in the trade, culinary, and local resource-based production sectors. This indicates that MSMEs play an important role in creating employment opportunities and improving community welfare in border areas (Roshani, 2024). However, MSMEs in border regions such as Sambas still face various challenges, including limited access to financing, weak supply chain integration, and the underutilization of cross-border market opportunities. In addition, most MSME actors have not yet implemented proper financial management systems and still pay limited attention to environmental aspects in their business activities (Kasim, 2024). One effort that can be undertaken to improve MSME sustainability performance is through the implementation of high-quality accounting information systems (Tafonao & Sianturi, 2025). A high-quality Accounting Information System (AIS) is capable of providing accurate, relevant, and timely financial information, thereby supporting effective decision making (Kartika et al., 2024). In the context of production- and culinary-based businesses, AIS quality also has the potential to assist business actors in identifying and managing operational costs, including costs related to environmental aspects. Along with the increasing awareness of environmental issues, the concept of green accounting has become increasingly relevant in modern accounting practices (Haerianti et al., 2024). Green accounting does not only focus on recording economic costs but also includes environmental costs such as energy consumption, waste management, and resource efficiency (Rita et al., 2025). This approach enables business actors to become more responsible for the environmental impacts generated by their activities while improving operational efficiency. The implementation of green accounting is believed to enhance the sustainability performance of MSMEs (Ramadhan & Ernaya, 2023). Sustainability performance is not only measured from financial aspects but also includes environmental concern and social contribution (Gustari & Sisdianto, 2024). By integrating environmental aspects into accounting systems, MSMEs can improve business image, cost efficiency, and long-term business continuity. However, there are still gaps in previous studies regarding the relationship between accounting information system quality, the implementation of green accounting, and sustainability performance, particularly within MSMEs in border regions. Most previous studies have focused on large companies, while research on MSMEs, especially in border areas such as Kabupaten Sambas, remains relatively limited. In addition, only a few studies have examined the role of green accounting as a mediating variable in this relationship. Based on the above explanation, this study aims to analyze the relationship between accounting information system quality and MSME sustainability performance, as well as to examine the role of green accounting as a mediating variable and map the indicators that should become priorities for improvement among MSMEs. The findings of this study are expected to provide theoretical contributions to the development of sustainability accounting and practical contributions for MSME actors in improving sustainable business performance.

Theoretical Framework

Accounting Information System Quality

Accounting information systems are systems used to collect, record, process, and generate financial information to support decision-making within organizations (Nasrudin et al., 2024). The quality of accounting information systems is an important factor in improving business management effectiveness, particularly for MSMEs that require fast, accurate, and relevant financial information. This study refers to the Information System Success Model developed by (DeLone & McLean, 2003) which explains that the success of an information system is influenced by system quality and the quality of the information produced. A high-quality system is able to improve the effectiveness of information use in business decision-making. In the context of MSMEs, the quality of accounting information systems can be reflected through ease of system use, accuracy of financial reports, speed of information access, and system suitability to business needs.

Green Accounting

Green accounting is an accounting concept that incorporates environmental aspects into the process of recording and managing business costs (Deswanto. V, 2022). This concept has developed alongside the increasing concern over sustainability issues and the environmental impacts of business activities. This study adopts the concept of Environmental Management Accounting (EMA) developed by (Schaltegger & Burritt, 2010). EMA emphasizes the importance of environmental cost identification, environmental cost accounting, energy and material management, environmental efficiency, and the use of environmental information in business decision making. The implementation of green accounting helps companies and MSMEs improve operational efficiency, reduce waste, and increase environmental awareness. Previous studies have shown that green accounting has a positive effect on business efficiency and business sustainability (Putri & Nugroho, 2021; Rahman et al., 2023).

Sustainability Performance

Sustainability performance refers to the ability of companies or MSMEs to maintain business continuity by balancing economic, environmental, and social aspects (Nurfitriana, 2024). This concept is based on the Triple Bottom Line theory introduced by John Elkington, which emphasizes three main dimensions of sustainability, namely profit, planet, and people. In addition, the measurement of sustainability performance is also supported by the Global Reporting Initiative (GRI Standards), which evaluates sustainability from economic, environmental, and social perspectives. Previous studies have shown that the implementation of sustainable business practices and proper environmental management can improve the competitiveness and long-term sustainability of MSMEs (Setiawan Septian, Elang Derdian Marindani, 2024).

2. METHODS

This study employs a quantitative approach with an explanatory research design (Sari et al., 2023) to examine the causal relationships between accounting information system quality, the implementation of green accounting, and sustainability performance, as well as to provide strategic recommendations regarding improvement priorities for MSMEs. The population of this study consisted of MSMEs operating in the culinary and production sectors in sambas regency. A purposive sampling technique was employed because only MSMEs that had operated for at least two years, maintained basic financial records, and were willing to participate were included in the study based on these criteria 43 MSMEs met the requirements and were selected as research respondents. The population of this study consisted of MSMEs operating in the culinary and production sectors in sambas regency. A purposive sampling technique was employed because only MSMEs that had operated for at least two years, maintained basic financial records, and were willing to participate were included in the study. The research model consists of accounting information system quality as the independent variable, green accounting as the intervening variable, and sustainability performance as the dependent variable. The study was conducted through several stages, which can be seen in the following figure,

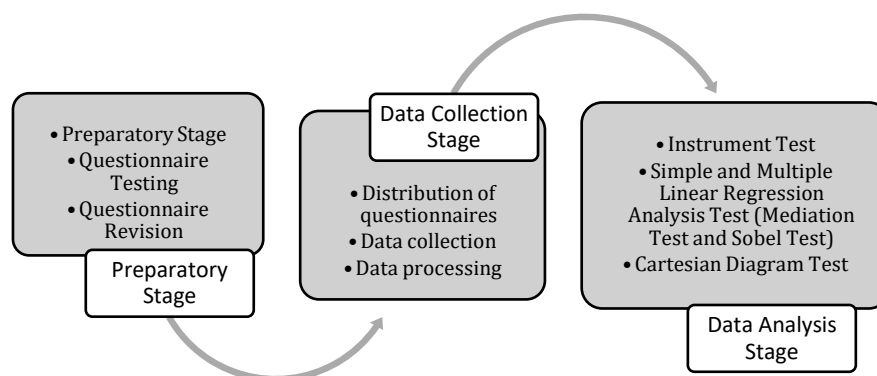


Figure 1. Research Stages

The study began with the preparation stage, in which questionnaire items were developed for each variable based on the indicators used in the research. Accounting information system quality was positioned as the independent variable, with indicators referring to the theory proposed by (DeLone & McLean, 2003) as follows,

- System Quality
- Information Quality
- Quality System
- Usefulness/User satisfaction

Green accounting was positioned as the intervening variable, with indicators referring to Modern Institutional Theory (Eamer et al. 2012), the Environmental Management Accounting concept developed by (Schaltegger & Burritt, 2010), (Ekins, Gupta, and Boileau 2022) as follows,

- Environmental Cost Identification
- Environmental Cost Accounting
- Material and Energy Flow Accounting
- Eco Efficiency
- Environmental Decision Making

Meanwhile sustainability performance was positioned as the dependent variable with indicators referring to the Global Reporting Initiative (Initiative, 2021) which include,

- a. Profit
- b. Planet
- c. People
- d. Sustainability/Business Continuity

The operational definitions of variables in this study were used as the basis for developing the research instrument in the form of a questionnaire. Each variable was developed into several indicators, which were then translated into measurable question items according to the research context. Respondents' answers were measured using a five-point Likert scale consisting of: (5) strongly agree, (4) agree, (3) moderately agree, (2) disagree, and (1) strongly disagree. The use of this scale aims to measure the level of respondents' perceptions toward each statement item presented in the study.

Table 1. Definition of Research Variables

Variables	Indicators	Question Items	Sources
Accounting Information System Quality	System Quality	My business financial application or record keeping is easy to use I had no trouble understanding the features in the financial recording system	DeLone & McLean
	Information Quality	Financial reports are produced in accordance with business conditions The financial data generated rarely contains errors	
	Quality System	I can quickly view my business financial information when needed Daily transaction recording can be done smoothly	
	Usefulness/User satisfaction	Financial recording system according to my business needs The system helps me control my business income and expenses	
Green Accounting	Environmental Cost Identification	I am aware of the costs of electricity, water, and fuel in the production process I am aware of the costs of wasted materials (food/production waste)	Stefan Schaltegger dan Roger L. Burrit
	Environmental Cost Accounting	I record electricity, water, and gas costs in my business books I calculate losses due to damaged or wasted raw materials	
	Material and Energy Flow Accounting	I control the use of raw materials to prevent waste. I conserve electricity, water, and gas in the production process	
	Eco Efficiency	I strive to reduce production waste (food/production waste). I use raw materials efficiently.	
	Environmental Decision Making	I consider electricity, material, and waste costs when determining selling prices. I consider the environmental impact of running my business.	
Sustainability Performance	Profit	My business is able to control raw material costs well. My business can save on operational costs (electricity, gas, etc.). My business generates a fairly stable profit.	Global Reporting Initiative (GRI)
		My business's financial condition is well maintained	

Planet	I conserve electricity, water, and gas during the production process. I maintain a clean business environment.
People	My business strives to reduce its negative impact on the environment. I maintain a clean and comfortable business environment for customers. The products I sell are safe and suitable for consumption/use. I maintain good relationships with the surrounding community. My business prioritizes customer health and safety.
Sustainability/Business Continuity	My business is sustainable in the long term. My business continues to grow over time. My business has the potential to continue operating in the future

Furthermore, to measure the mapping of indicators that are prioritized for improvement in MSMEs, this study uses a Cartesian Diagram analysis through the Importance Performance Analysis (IPA) approach. This analysis is conducted based on the operational definitions of variables that have been developed into research indicators. Each indicator is measured based on its level of importance and performance level according to respondents' perceptions. The results of this mapping are then used to identify indicators that are the main priority for improvement, indicators that need to be maintained, indicators with low priority, and indicators that are considered excessive in their implementation in MSMEs

Tabel 2. Definition of Research Variables Cartesian Diagram

Variables	Indicators	Question Items Importance (I) and Performance (P)	Sources
Accounting Information System Quality	System Quality	I1. Ease of use of financial applications/bookkeeping is important for business P1. The bookkeeping/financial application I use is easy to use I2. Ease of understanding financial records is important P2. I can easily understand how to record business finances	DeLone & McLean
	Information Quality	I3. Accurate financial reporting is important to my business P3. My financial records are accurate and reflect the current state of my business I4. Reliable financial information is important P4. My business's financial data is reliable	
	Quality System	I5. Quickly accessible financial information is important P5. I can quickly see my financial situation I6. Smooth recording of daily transactions is important P6. I regularly record daily sales and expenses	
	Usefulness/User satisfaction	I7. A bookkeeping system that suits your culinary/production business is important P7. My bookkeeping method is appropriate for my business needs I8. A system that helps me control my finances is important	

		P8. Bookkeeping helps me control my income and expenses	
Green Accounting	Environmental Cost Identification	I9. Knowing the costs of electricity, water, and gas is important	Stefan Schaltegger dan Roger L. Burrit
		P9. I know and pay attention to the costs of electricity, water, and gas	
		I10. Knowing the raw material waste is important	
		P10. I pay attention to the food/production waste	
	Environmental Cost Accounting	I11. Recording electricity, water, and gas costs is important	
		P11. I record electricity, water, and gas costs in my business	
		I12. Calculating losses from wasted materials is important	
		P12. I calculate losses from damaged/wasted materials	
	Material and Energy Flow Accounting	I13. Controlling raw material usage is important	
		P13. I manage raw material usage to avoid waste.	
		I14. Saving electricity, water, and gas is important.	
		P14. I try to save electricity, water, and gas.	
	Eco Efficiency	I15. Reducing food/production waste is important.	
		P15. I try to reduce production waste.	
		I16. Efficient use of raw materials is important.	
		P16. I use raw materials efficiently	
	Environmental Decision Making	I17. Considering the costs of raw materials, energy, and waste is important.	Global Reporting Initiative (GRI)
		P17. I consider these costs when determining prices/products.	
		I18. Considering the impact of my business on the environment is important.	
		P18. I pay attention to the impact of my business on the surrounding environment	
Sustainability Performance	Profit	I19. Saving business costs is important	
		P19. My business is efficient in its spending	
		I20. Stable business finances are important	
		P20. My business finances are quite stable	
	Planet	I21. Efficient energy use is important	
		P21. I am efficient in my energy use	
		I22. Business waste management is important	
		P22. I manage waste well	
	People	I23. Environmental awareness is important	
		P23. My business cares about the environment	
		I24. Cleanliness of the business premises is important	
		P24. I keep the business premises clean	
	Sustainability/Business Continuity	I25. Customer comfort is important	
		P25. Customers feel comfortable at my place of business	
		I26. Safe and consumable products are important	
		P26. My products are safe and consumable/usable	

The research instrument was subsequently tested through validity and reliability tests to ensure that each questionnaire item had adequate accuracy and consistency before being distributed to respondents. After

the research instrument was declared valid and reliable, the data collection stage began with the distribution of questionnaires to the research respondents. The questionnaires were distributed to MSME actors in the culinary and production sectors as the primary data sources in this study. The collected data then underwent an editing process by checking the completeness of respondents' answers, the consistency of responses, and ensuring that there were no unanswered or incomplete questions. Next, the coding stage was carried out by assigning numerical codes to each respondent's answer based on the Likert scale, which facilitated the data input and analysis process. During the tabulation stage, respondents' answers were organized and grouped into tables in Microsoft Excel according to the research variables and indicators, making the data easier to read and preparing it for further analysis. Subsequently, the data were processed using IBM SPSS Statistics to conduct instrument testing, regression analysis, mediation and Sobel tests, as well as Importance Performance Analysis (IPA). The final stage involved data analysis after all research data had been collected and processed. The analysis process was carried out using IBM SPSS Statistics through several stages, including instrument testing consisting of validity and reliability tests, linear regression analysis to examine the relationships among variables, and mediation testing using the Baron and Kenny method along with the Sobel test to determine the role of the intervening variable. In addition, this study also applied the Importance Performance Analysis (IPA) method using a Cartesian diagram to map the levels of importance and performance for each research indicator. This analysis was used to identify indicators that should become the main priorities for improvement, indicators that should be maintained, and indicators with lower priority in their implementation within MSMEs. The results of the data analysis were then interpreted to draw research conclusions in accordance with the research objectives that had been established.

3. RESULTS AND DISCUSSIONS

Results

The results of the instrument testing showed that all questionnaire items had correlation values greater than the r table value, indicating that all items were valid. Furthermore, the reliability test results showed that all research variables had Cronbach's Alpha values greater than 0.70, meaning that the research instrument was considered reliable and suitable for use in the subsequent testing stages.

Simple and Multiple Linear Regression Analysis Test

The results of the quality of SIA as an independent variable against Green Accounting as an intervening variable in simple regression testing show the following results,

Table 3. Results of Simple Regression Testing of Information System Quality on Green Accounting

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10,686	4,579		2,334	,025
	SIA	,782	,144	,646	5,416	,000

The analysis results indicate that accounting information system quality has a positive and significant effect on green accounting. This is evidenced by a regression coefficient value of 0.782 and a significance value of 0.000, which is smaller than 0.05. This finding indicates that the better the quality of the accounting information system, the higher the implementation of green accounting in MSMEs. In addition, the beta value of 0.646 shows that the relationship between the two variables is strong and positive.

Furthermore, the results of testing the green accounting instrument as an intervening variable on sustainability performance as a dependent variable show the following results

Table 4. Results of Simple Regression Testing of Green Accounting on Sustainability Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	6,513	5,073		1,284	,206
	Green	1,318	,142	,822	9,253	,000

The analysis results show that green accounting has a positive and significant influence on the sustainability performance of MSMEs. This is evidenced by a coefficient value of 1.318 and a significance level of 0.000, which is less than 0.05. This indicates that the better the implementation of green accounting, the higher the sustainability performance of MSMEs. Furthermore, a beta value of 0.822 indicates a very strong influence. Next, the results of testing the quality of the AIS as an independent variable on sustainability performance as a dependent variable show the following results,

Table 5. Results of Simple Regression Testing of Accounting Information Systems on Sustainability Performance

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	23,409	8,405			2,785	,008
	SIA	,941	,265	,485		3,550	,001

The test results indicate that the quality of the accounting information system has a positive and significant effect on the sustainability performance of MSMEs. This is evidenced by a coefficient value of 0.941 and a significance value of 0.001, less than 0.05, indicating that a good accounting information system can improve the sustainability of MSME businesses. Furthermore, a beta value of 0.485 indicates a positive effect.

The results of the accounting information system test, green accounting, and sustainability performance, show the following results

Table 6. Results of Multiple Regression Testing of Accounting Information Systems, Green Accounting on Sustainability Performance

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	8,454	5,859			1,443	,157
	SIA	-,154	,227	-,079		-,676	,503
	Green	1,400	,188	,873		7,454	,000

The test results show that when the green accounting variable was included together with the accounting information system variable, the effect of the accounting information system on business sustainability became insignificant, as indicated by a significance value of 0.503, which is greater than 0.05. Meanwhile, the green accounting variable remained significant with a significance value of 0.000, which is smaller than 0.05. This indicates a full mediation effect because the influence of the accounting information system on business sustainability was initially significant, but after the mediator was included, the effect became insignificant. This finding implies that accounting information system quality does not directly improve MSME sustainability performance, but rather through the implementation of green accounting. In other words, the accounting information system helps MSMEs manage environmental information, and it is the implementation of green accounting that ultimately enhances business sustainability. Furthermore, a Sobel test was conducted to examine the significance of the indirect effect of accounting information system quality on sustainability performance through green accounting. The path from accounting information system quality to green accounting produced a coefficient value of $a = 0.782$ with $Sa = 0.144$. Meanwhile, the path from green accounting to sustainability performance produced a coefficient value of $b = 1.318$ with $Sb = 0.142$. Therefore, the Sobel test calculation is as follows,

$$Z = \frac{a \times b}{\sqrt{b^2 S_a^2 + a^2 S_b^2}} \quad (1)$$

$$Z = \frac{0,782 \times 1,318}{\sqrt{((1,318)^2 \times (0,144)^2) + ((0,782)^2 \times (0,142)^2)}}$$

$$Z = 4,71$$

So the results of the Sobel test calculation obtained a value of 4.71, this value is greater than the Z table value of 1.96 at a significance level of 5%. It can be concluded that the green accounting variable is able to

significantly mediate the relationship between the quality of the accounting information system and the sustainability performance of MSMEs.

Interprestasi Diagram Kartesius (IPA)

The Importance Performance Analysis (IPA) Cartesian diagram is used to map the importance and performance levels of each research indicator. The vertical line indicates the average importance level, while the horizontal line indicates the average performance level. The mapping results are divided into four quadrants, depicting the priority indicators for improvement and development in MSMEs.

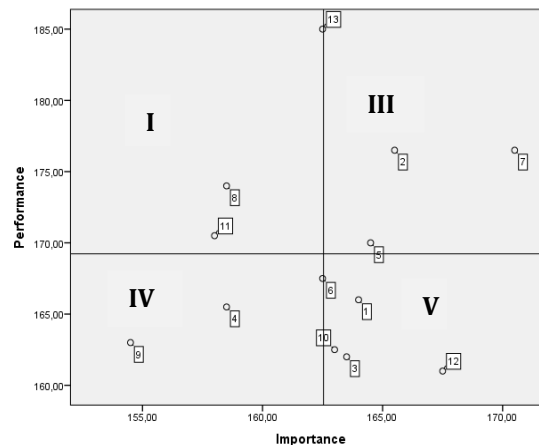


Figure 2. Cartesian Diagram Results per Indicator

In Quadrant I, which represents the main priority for improvement, the indicators have a high level of importance but low performance. Indicators located in this quadrant become the primary focus for improvement because they are considered important by MSME actors, yet their implementation is still not optimal. The indicators included in this quadrant are Quality System, Profit, and People. For the Quality System indicator, MSME actors perceive system quality as highly important in supporting business management; however, the systems currently used are still not optimal in terms of integration, operational ease, and effectiveness of use. This finding indicates the need to improve accounting information system quality so that it is more aligned with MSME needs. For the Profit indicator, profitability is considered a major concern among MSME actors, yet business profit performance remains suboptimal. This condition suggests that operational efficiency and business cost management still need to be improved. For the People indicator, social aspects such as customer comfort, service quality, and employee welfare are considered important, but their implementation remains relatively low, thus requiring greater attention in the development of sustainable businesses. Quadrant II represents “Maintain Performance,” where indicators have both high importance and high performance. Indicators in this quadrant have been implemented well and should therefore be maintained because they are considered important and already demonstrate strong performance. These indicators include Information Quality, Environmental Cost Identification, Material and Energy Flow Accounting, and Sustainability/Business Continuity. The interpretation of the Information Quality indicator shows that the quality of information generated by the accounting system is considered good and capable of assisting MSME actors in business decision-making. For the Environmental Cost Identification indicator, MSME actors have been able to identify environmental costs such as electricity, water, gas, and wasted raw materials relatively well. The Material and Energy Flow Accounting indicator indicates that the management of raw material and energy usage has been implemented quite effectively, thereby supporting operational efficiency within the business. Meanwhile, the Sustainability/Business Continuity indicator demonstrates that business continuity has become a primary concern for MSMEs and has shown good performance in maintaining long-term business stability. Furthermore, Quadrant III represents low priority, characterized by low importance and low performance. Indicators in this quadrant are considered less important and have relatively low performance, meaning they are not yet regarded as top priorities for improvement. The indicators included in this quadrant are Usefulness/User Satisfaction, Environmental Cost Accounting, and Environmental Decision Making. The interpretation of the Usefulness/User Satisfaction indicator suggests that the benefits of the system and user satisfaction have not yet been fully experienced by MSME actors and are not considered major priorities. For the Environmental Cost Accounting indicator, environmental cost recording is still carried out in a simple manner and has not yet become a major focus in business management. The Environmental Decision

Making indicator indicates that environment-based decision making remains relatively low because many MSMEs are still primarily focused on short-term business operations. Finally, Quadrant IV represents excessive performance, characterized by low importance but high performance. Indicators in this quadrant demonstrate strong performance even though their level of importance is relatively low, suggesting that their implementation may be excessive compared to the current needs of MSMEs. The indicators included in this quadrant are System Quality, Eco Efficiency, and Planet. The interpretation of the System Quality indicator shows that the technical quality of the system is already quite good; however, it is not yet considered a primary priority by some MSME actors. For the Eco Efficiency indicator, environmental efficiency practices have been implemented relatively well, although their importance is not yet perceived as high by all business actors. The Planet indicator indicates that environmental concern has been implemented fairly well, but it has not yet become a central focus in MSME business development strategies. The IPA mapping results indicate that the main priorities for improvement among MSMEs in Kabupaten Sambas lie in improving system quality, increasing business profitability, and strengthening social aspects (people). Meanwhile, indicators related to information quality, environmental cost identification, material and energy management, and business sustainability have performed well and should therefore be maintained

Discussion

The Effect of Accounting Information System Quality on Green Accounting

The results of this study indicate that the quality of the accounting information system has a positive and significant effect on green accounting. This finding suggests that the better the quality of the accounting information system in an MSME, the better the implementation of green accounting in business management. A system that is easy to use, produces accurate information, has quick access, and is tailored to business needs can help MSMEs identify and record environmental costs such as electricity, water, gas, and waste. These results support the Information System Success Model developed by William H. DeLone and Ephraim R. McLean, which explains that system quality and information quality play a critical role in improving organizational effectiveness and decision-making quality. In the context of MSMEs, an accounting information system serves not only as a financial recording tool but also as a means of cost control and business environmental management. For MSMEs in Sambas Regency, a border region, the quality of the accounting information system is crucial in helping businesses manage operational activities more efficiently and structured. With a good system, businesses can more easily control the use of raw materials, energy, and other operational costs.

The Effect of Green Accounting on Sustainability Performance

The results of this study indicate that green accounting has a positive and significant impact on the sustainability performance of MSMEs. This indicates that the implementation of environmental cost management, energy efficiency, and waste control can improve business sustainability from an economic, environmental, and social perspective. This research finding aligns with the Environmental Management Accounting (EMA) concept developed by Stefan Schaltegger and Roger L. Burritt, which emphasizes the importance of environmental information management in supporting business efficiency and sustainability. Through the implementation of green accounting, MSMEs can reduce raw material waste, increase energy efficiency, and minimize unnecessary operational costs. In addition to improving business efficiency, the implementation of green accounting also positively impacts business image and customer trust. Customers tend to be more attracted to businesses that prioritize cleanliness, product safety, and environmental awareness. Thus, green accounting not only improves business economic performance but also strengthens long-term business sustainability.

The Influence of Accounting Information System Quality on Sustainability Performance

The research findings indicate that accounting information system quality has a positive and significant effect on MSME sustainability performance. A high quality accounting information system helps business actors obtain financial information quickly and accurately, thereby supporting more effective business decision-making. These findings are consistent with the Information System Success Model, which explains that system quality and information quality can improve organizational effectiveness. In MSMEs, the use of a well-functioning accounting information system assists in managing operational costs, maintaining financial stability, and increasing business efficiency. For MSMEs in Kabupaten Sambas, the ability to manage financial information effectively is also an important factor in enhancing business competitiveness in border areas. Business actors who possess well organized recording systems will find it easier to monitor business activities and maintain long-term business sustainability.

The Mediation Role of Green Accounting

The results of the mediation test indicate that green accounting is able to fully mediate the relationship between the quality of accounting information systems and the sustainability performance of MSMEs. In the initial test, the quality of accounting information systems had a significant effect on sustainability

performance. However, after the green accounting variable was included in the regression model, the direct effect of accounting information system quality became insignificant, while green accounting remained significant. These results indicate that the quality of accounting information systems does not directly improve sustainability performance, but rather through the implementation of green accounting. In other words, accounting information systems will have an impact on business sustainability if the information generated is used in environmental cost management and sustainability-oriented decision-making. The results of the Sobel test also strengthen these findings by showing that the indirect effect through green accounting is statistically significant. This indicates that green accounting is an important mechanism in linking the quality of accounting information systems with improved sustainability performance of MSMEs.

Importance Performance Analysis (IPA)

The Importance Performance Analysis (IPA) analysis results show that several indicators are still in Quadrant I, or the top priority for improvement, particularly in aspects of system quality, business profitability, and social aspects (people). These indicators are considered important by MSMEs, but their implementation is still not optimal, so they need to be considered in developing sustainable businesses. Meanwhile, indicators of information quality, environmental cost identification, material and energy management, and business continuity are in Quadrant II, indicating that these indicators have a high level of importance and performance and need to be maintained. The IPA mapping results indicate that MSMEs in Sambas Regency still need improvements in the implementation of sustainability strategies, particularly in environmental management and strengthening the quality of business systems to be able to increase competitiveness and business continuity in a sustainable manner.

This research is novel in its use of a mixed analytical approach, namely testing causal relationships between variables using regression analysis and mediation tests, and mapping indicator priorities using the Importance Performance Analysis (IPA) method. This approach provides added value because it not only explains the statistical relationships between variables but also produces practical recommendations regarding which indicators are the main priority for improvement for MSMEs. Thus, the research results are not only theoretical but also applicable for business development. Another novelty lies in the research context, which focuses on MSMEs in the culinary and production sectors in Sambas Regency, a border region. Most previous research on green accounting and sustainability has been conducted in large companies or urban areas, while this study addresses the context of MSMEs in border areas that have different characteristics, such as limited access to technology, managerial capacity, and operational efficiency challenges. This makes this research relevant in expanding the sustainability literature in the MSME sector in non-urban areas. Furthermore, the novelty of this research is also seen in the development of a research instrument based on Importance Performance Analysis (IPA), which measures two dimensions simultaneously: the level of importance and the level of performance of each indicator. This approach provides a more in-depth understanding of the gap between the expectations and actual conditions of MSMEs, thus providing a basis for developing strategies to improve the quality of accounting information systems and implement more targeted green accounting. Thus, this research not only strengthens the development of theories related to the Information System Success Model, Environmental Management Accounting (EMA), and the Triple Bottom Line, but also provides new empirical contributions regarding the importance of integrating accounting digitalization and green accounting as pillars of MSME sustainability, particularly in border areas.

4. CONCLUSION

The quality of the accounting information system has a positive and significant effect on green accounting. This indicates that an accounting information system that is easy to use, accurate, quickly accessible, and tailored to business needs can support the implementation of environmental cost management in MSMEs. Green accounting has a positive and significant effect on the sustainability performance of MSMEs. The implementation of environmental cost identification, energy and raw material management, and environmental efficiency can improve business sustainability from economic, environmental, and social aspects. The quality of the accounting information system has a positive and significant effect on the sustainability performance of MSMEs. A good accounting information system helps MSMEs improve the effectiveness of business management and business decision-making. The results of the mediation test indicate that green accounting is able to fully mediate the relationship between the quality of the accounting information system and the sustainability performance of MSMEs. This indicates that the influence of the accounting information system on business sustainability will be more optimal if supported by the implementation of green accounting. The results of the Importance Performance Analysis (IPA) analysis indicate that the indicators of system quality, business profitability, and social aspects (people) are the main priorities for improvement because they have a high level of importance but still have low performance. Meanwhile, the indicators of information quality, environmental cost identification, material and energy

management, and business sustainability have a high level of importance and performance and therefore need to be maintained. Overall, this study shows that the integration of the quality of accounting information systems and the implementation of green accounting are important factors in supporting the sustainability of MSMEs, especially in the culinary and production sectors in border areas.

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