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Sustainable Accounting Management in Achieving Sustainable Development Goals: The Role of Performance Auditing in Publicly listed Manufacturing Sector

Abstract

The manufacturing industry plays an important role in Indonesia's economic growth by contributing greatly to increased export earnings and wider employment opportunities. Therefore, efforts are needed to implement sustainability projects in the manufacturing sector to overcome environmental problems that can be caused by the industry. However, developing countries such as Indonesia often experience difficulties in promoting the implementation of sustainability due to a lack of sufficient maturity. Therefore, greater efforts are needed to accelerate the process of change towards sustainability in developing countries like Indonesia. In addition, companies in the manufacturing sector in developing countries tend not to prioritize the use of sustainability management accounting (SMA). The four specific goals of this study are to investigate the implementation of Sustainable Development Goals (SDGs) in manufacturing corporations in Indonesia as one of the largest contributors of carbon emision and climate changes. Specifically, the research empirically examines the relationship between environmental management systems and sustainability management accounting, the relationship between environmental management systems and organizational performance in the Indonesian manufacturing sector, and to determine whether environmental management systems can improve organizational performance. The research method used is a quantitative method with data collection using survey methods through questionnaires. In this study, 325 respondents were sampled, and structural equation modeling (SEM) analysis was used to examine the data. According to the study's findings, there is a substantial positive link between environmental management systems and sustainability management accounting as well as between these two variables and organizational performance. Additionally, there is a strong positive association between organizational success and environmental management systems. The findings also indicate that the environmental management system plays a limited mediating role in the association between organizational performance in the Indonesian manufacturing sector and sustainability management accounting.

Keywords: Sustainable Accounting Management, Sustainable Development, Organizational Performance, Manufacturing Companies, Public Sector

Introduction

The manufacturing industry plays a crucial role in driving Indonesia's economic growth as it makes a major contribution to increasing export earnings and wider employment opportunities. The manufacturing industry, which is a significant sector, continues to be focused on producing high-quality, versatile products, particularly in the fields of power and electronics, machinery and equipment, and chemical products. However, the manufacturing industry can also cause environmental problems such as excessive waste, exploitation of natural resources, and excessive use of energy if not regulated properly. Therefore, it is very important to implement sustainability projects in the manufacturing sector to address the environmental problems that may be caused by the industry.

However, a less developed country like Indonesia often experiences difficulties in promoting sustainable implementation because it has not yet attained sufficient maturity. Mayndarto & Murwaningsari (2021); Fuzi et al. (2022), countries like Indonesia require more time and effort to implement sustainable measures compared to developed countries which have

reached maturity in economic and social terms. Therefore, greater efforts are needed to accelerate the process of change towards sustainability in developing countries like Indonesia. Apart from that, in the context of the manufacturing industry in developing countries, companies tend not to place the focus on the use of sustainability management accounting (SMA) (Solovida & Latan, 2017). Therefore, this study is focused on the manufacturing sector in Indonesia to improve organizational performance (OP) and sustainability management accounting in the field.

Sustainability management accounting (SMA), a difficult-to-recognize difficulty brought on by the implementation of sustainable practices in management accounting. Indonesia's manufacturing sector has trouble efficiently applying sustainability management accounting. Limited resources, inadequate government policies, and lack of company awareness and commitment to implementing sustainable practices are the main factors causing difficulties in implementing sustainability management accounting in the manufacturing sector (Qian et al., 2018). The manufacturing sector relies heavily on efficient sustainability practices to ensure the long-term survival of companies. Sustainable management accounting (SMA) is becoming an important tool for companies in managing resources and minimizing negative impacts on the environment. Applying sustainability management accounting can assist companies in improving the company's organizational performance (OP), both in terms of operational efficiency, cost savings, and improving the company's image in the eyes of consumers. By implementing efficient sustainability practices, companies can increase the efficiency of resource use and reduce production waste, thereby saving production costs and increasing profits. Companies that implement efficient sustainability practices will be considered socially and environmentally responsible companies, to increase consumer appeal and strengthen the company's brand image.

An environmental management system (EMS) can help firms satisfy specified sustainability criteria in the context of sustainability management accounting. Like ISO 14001, a global standard for environmental management that can help businesses meet their sustainability objectives. By implementing ISO 14001, organizations can increase the efficiency of resource use, reduce waste and emissions, and improve compliance with environmental regulations. A framework called an environmental management system (EMS) is created to help firms monitor, assess, and enhance their environmental practices. By implementing an environmental management system, organizations can identify, measure, and monitor the environmental impacts of their activities, as well as develop strategies to reduce these impacts (Purwanto, 2020). In addition, the environmental management system can also assist organizations in strengthening the company's sustainability performance. By measuring the environmental impact of company activities, organizations can identify inefficient resources and find ways to reduce their use of those resources. This can help companies save on operational costs, increase production efficiency, and reduce risks to climate change and other environmental problems.

The environmental management system (EMS) provides direction and framework for environmental management in the manufacturing sector (Phan et al., 2018). The environmental management system is designed to assist organizations in managing the environmental impact of the organization's or company's operational activities. The environmental management system assists organizations in understanding and managing the environmental impact of their activities, so that they can identify problems and find solutions to reduce these impacts. Environmental management systems can assist organizations in managing waste and emissions, reducing raw material and energy use, and increasing production efficiency. Organizations can also use the environmental management system to monitor and improve the company's environmental performance, as well as ensure compliance with applicable environmental regulations. Lee et al.

(2021) suggests that more companies in Indonesia implement environmental management systems to improve organizational performance. Environmental management systems can help companies to strengthen their sustainability performance and create added value for companies and society. Environmental management system was identified as a potential intermediary variable due to its possible correlation with sustainability management accounting and organizational performance. The objectives of this study are to: investigate the connection between environmental management systems and sustainability management accounting; investigate the connection between organizational performance and sustainability management accounting in the Indonesian manufacturing sector; and investigate the possibility that environmental management systems can enhance organizational performance.

Theoretical Framework and Hypothesis

Manufacturing companies face challenges to improve their organizational performance in manufacturing. To increase sustainability in manufacturing, the importance of Sustainable Development Goals (SDGs) can be evaluated through organizational performance (Fuzi et al., 2020; Ensslin et al., 2022). To improve their operational efficiency, businesses must improve energy consumption, material usage, and recycling practices to achieve SDGs by improving organizational performance in the manufacturing industry. Assessing and measuring organizational performance can have a positive impact on company output, particularly in the Indonesian manufacturing industry. Organizational performance metrics can be used to identify performance measures and improve sustainability management in manufacturing (Mousa et al., 2020). Rajagopal & Davila (2020) revealed that organizational performance can not only increase organizational effectiveness, but also overall performance. Environmentally related production, disposal and disposal considerations are important aspects of enterprise management that can be evaluated through an analysis of organizational performance. Measuring organizational performance can help improve manufacturing efficiency, reduce costs, and streamline procedures and their implementation can help organizations achieve Sustainable Development Goals (SDGs), which are particularly relevant to the manufacturing sector in Indonesia (Rehman et al., 2019).

Management decisions, organizational structure, management systems, and external influences are only a few of the aspects the accounting industry has highlighted as having an impact on the development of management accounting (Sarta, 2021). Lee et al. (2021) underline the significance of contingency theory in achieving greater productivity brought about by the use of SMA. This emphasizes the significance of sustainability-related efforts, such as environmental costs, performance evaluation, and sustainability management, not only for management but also for sustainability. A widely accepted management approach, it is considered highly efficacious in organizations that are subject to diverse environmental influences. This theory is able to provide a clear understanding of performance metrics such as accounting and sustainability management (Granlund & Lukka, 2017; McAdam et al., 2019).

Utilization of sustainability management accounting is a sustainability approach that includes organizational operations. Adoption of sustainability management accounting by businesses can reduce ecological concerns and improve their overall performance and sustainability through the provision of environmentally focused information. This can advance management accounting by providing relevant ecological data, which is essential for controlling and improving organizational performance which is critical for the manufacturing segment in Indonesia. This research related to sustainability management accounting concentrates on the manufacturing sector where environmental issues are of urgent concern due to company

operations. Implementation of sustainability management accounting can generate many environmental benefits and improve environmental initiatives, management, and performance, leading to a reduction in negative environmental impacts. By adopting sustainability management accounting practices, the Indonesian manufacturing industry can minimize environmental problems and improve its performance. Therefore, it is highly recommended to prioritize the integration of sustainability management accounting in the Indonesian manufacturing industry (Fu & Lai, 2021).

Despite the challenges, implementing an environmental management system has proven useful in addressing environmental issues and improving an organization's environmental policy. Environmental management systems are considered as an effective solution to support environmental management in the Indonesian manufacturing industry and can help achieve SDGs by managing organizational goals with sustainable practices. In addition, environmental management systems can help organizations manage environmental issues and reduce costs while promoting sustainable practices and enhancing their reputation (Voukkali et al., 2017; Fuzi et al., 2022). The application of an environmental management system in the Indonesian manufacturing industry can contribute to the improvement of company processes, procedures, structures, and development, leading to continuous performance improvement. This systematic approach aims to achieve better results while addressing environmental issues specified in SDGs by achieving organizational goals. Jiang et al. (2020) emphasized that the implementation of an environmental management system can have a positive impact on organizational performance. It is very important for companies to recognize and integrate the implementation of environmental management systems to fully address environmental issues.

Mungai et al. (2020) emphasize the importance of adopting a sustainable management approach (SMA) to facilitate the implementation of an environmental management system (EMS) and achieve environmental targets as outlined in SDGs. The environmental management system promotes the evaluation and improvement of an organization's environmental management practices, and the sustainable management approach provides useful techniques for improving the environmental management system. To improve sustainability management, organizations should use environmental management systems and sustainable management approaches together, indicating the need for the Indonesian manufacturing sector to adopt an EMS that incorporates a sustainable management approach. This initiative can address the sustainability issues faced by the industry. The application of sustainability management accounting aims to increase the efficiency and effectiveness of the environmental management system. By using an environmental management system to assess the impact on sustainability, the manufacturing industry can improve operational efficiency, minimize wastage of resources, and reduce environmental pollution. As a result, sustainability management accounting plays an important role in advancing the processes, regulations, and frameworks of the Indonesian manufacturing industry. Therefore, the formulation of the first hypothesis based on the literature review above is concluded as follows:

H1. *Sustainability management accounting has a significant effect on the environmental management system*

Abele et al. (2017) investigated the effects of sustainability management accounting and organizational performance on Indonesian manufacturing companies and concluded that adopting sustainability management accounting is very important for organizations that wish to improve their performance and achieve greater success by internalizing SDGs in organisational targets,

because there is a positive correlation between sustainability management accounting and organizational performance. In addition, Beitzen-Heineke et al. (2017) found that sustainability management accounting can address environmental issues effectively and promote organizational performance and financial results in the industry. Sustainability management accounting has significant implications for improving organizational performance, reducing environmental impact, and improving financial performance in the industry. Sahoo (2022) conducted a recent study in China and discovered that applying sustainability management accounting can have a number of advantages, such as improved reputation and competitiveness, optimal resource use, increased productivity, and increased profitability, which ultimately improves organizational performance. Based on the available literature, it is proposed that sustainability management accounting can assist organizations in identifying and improving organizational performance metrics. Thus, the second hypothesis in this study is as follows:

H2. *Sustainability management accounting has a significant effect on organizational performance*

The adoption of an environmental management system can improve organizational performance, as Fuzi (2020) found that there is a substantial correlation between variables in the industrial sector. A significant association between organizational performance and the environmental management system was discovered by Herghiligiu et al. (2019), who observed a similar pattern. Adopting an environmental management system will help organizations operate better. According to Fuzi (2020), the application of environmental management systems has improved organizational performance in the manufacturing sector. The adoption of an environmental management system may, thus, improve organizational performance in the Indonesian industrial sector. The third hypothesis put forth follows an assessment of the literature on environmental management systems and organizational performance.

H3. *The environmental management system has a significant effect on organizational performance*

The study also looks at how environmental management systems affect both organizational performance and sustainability management accounting. In a previous study, Solovida & Latan (2017), it was discovered that environmental management systems, sustainability management accounting, and organizational performance all had positive relationships. This is so because environmental management systems aid organizations in assessing their sustainability management procedures. This study seeks to assess how well environmental management systems mediate the link between organizational performance and sustainability management accounting. The success of a business's sustainability management and financial performance can be greatly influenced by the installation of an environmental management system. This study also highlights the importance of incorporating environmental management systems for companies to reduce environmental costs, improve environmental management quality, reduce energy and material consumption, and assess process-related environmental damages. Environmental management systems can effectively help improve sustainability management accounting and organizational performance. After examining the above literature, the following proposition is suggested as a potential fourth hypothesis:

H4. *The mediating role of environmental management systems in sustainability management accounting and organizational performance*

This study examines the connection between environmental management systems, organizational performance, and sustainability management accounting variables in order to better comprehend the hypothesis presented above. Therefore, the presentation of the framework in this study can be seen in figure 1 below:

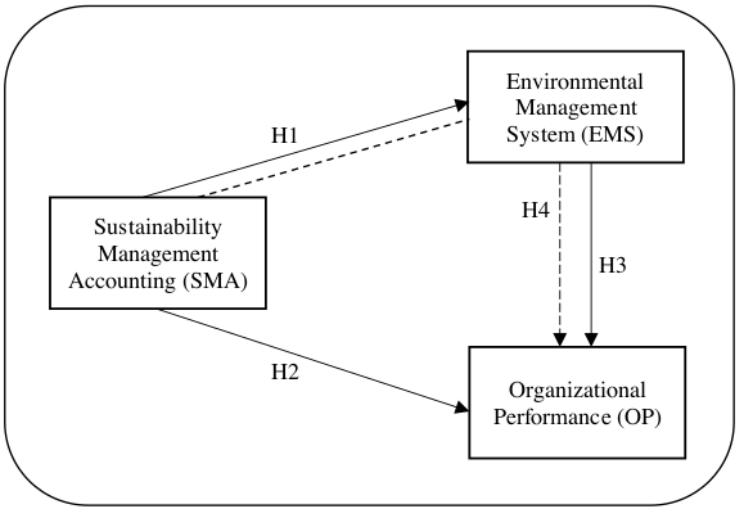

Figure 1. Research contextual framework

Method

This study focuses on the manufacturing sector and uses a sample of Indonesian companies sourced from the Indonesia Stock Exchange. The study included manufacturing firms in the automotive/machinery, plastics/rubber/metal, food/tobacco, electrical/electronics, and chemical/wood sectors, and the analysis concentrated on the organizational level. In order to gather information about sustainability management accounting, environmental management systems, and organizational performance, researchers interviewed a specific sample of people in top management roles, including managing directors, quality control managers, manufacturing managers, and accountants. Environmental expenses, environmental regulations, environmental safety, management commitment, and customer focus are the five dimensions used to evaluate sustainability management accounting. These five dimensions each consist of 25 different items that have been taken from Al-Mawali et al. (2018). The four categories and 20 specific actions that make up the environmental management system are drawn from Ann et al. (2006) and cover planning, implementation and management, auditing and evaluation, and remedial measures. Organizational performance consists of two aspects, namely financial performance, and operational performance, requiring a total of 10 measurements adapted from Sari et al. (2021).

This study employed a quantitative methodology. The manufacturing organizations participated in the study, which was done using online survey tools, e-mail, and telephone calls, and data was collected using a survey method. The survey was conducted to collect the perspectives of Indonesian producers, consisting of a total of 55 questions. Questionnaires were distributed to respondents in assessing the opinions of respondents with a Likert scale of 1 to 7, where 1 means strongly disagree and 7 means strongly agree. After the six-month period, a total of 344 surveys were collected. However, upon initial inspection, 19 anomalies were identified in

the data set, related to various statistical assumptions such as assumptions of multivariate, normality, linearity, homoscedasticity, and multicollinearity. Finally, 325 questionnaires that were deemed to be trustworthy were examined for this investigation. Structural Equation Modeling (SEM) analysis was used in this study's data analysis.

According to Verma & Verma (2020), a sample size of 335 is suitable where it is generally recommended to have a sample size of 200-400 participants to determine an appropriate sample size. Using Structural Equation Modeling (SEM) in testing research hypotheses, a reasonable sample size ranges from 100 to 500 participants. This study suggests utilizing a covariance-based structural equation model (CB-SEM) to examine the relationship between endogenous and exogenous variables in order to test the fundamental hypotheses. CB-SEM is a popular analytical technique due to its ability to evaluate direct and indirect effects, as well as estimate sample parameters simultaneously and improve model representation by reducing measurement error through confirmatory factor analysis (CFA). Therefore, the statistical analysis technique used in this study is CB-SEM. In order to ensure the reliability and validity of the survey, steps were taken during the analysis of the research included in this study, including evaluating construct reliability, face validity, and content validity to make sure the survey items accurately captured the variables explored.

Research Result

Through the Exploratory Factor Analysis (EFA) test, this study undertakes a preliminary evaluation of three distinct sets of variables, namely the aspects of sustainability management accounting, environmental management systems, and organizational performance. In this analytical test, the KMO measure was used to ensure the suitability of the data and the intercorrelation between items was assessed using the Bartlett roundness test (with a significant value <0.001). In the next step, PUS uses the total variance described to determine the number of items with an Eigenvalue greater than one. Then, the component matrix undergoes rotation to identify item factors that are loaded accordingly. The results of the Exploration Factor Analysis (EFA) test can be seen in table 1 below:

Table 1. Exploration Factor Analysis Test (EFA)

Indicator	KMO Bartlett's Value	Total Variance Explained	Information
Sustainability Management Accounting (SMA)	0.875	75.260%	Significant
Environmental Management System (EMS)	0.881	72.051%	Significant
Organizational Performance (OP)	0.908	74.178%	Significant

Table 1 above's Exploration Factor Analysis (EFA) test results reveal that the EFA test has a significant value for every indication. Then, three measures were put into place to lessen the possibility of distortion coming from the gathering of data in a single event, in order to mitigate the potential influence of common method bias. First, the measurement items are modified by including items from various sources while maintaining the confidentiality of the respondents. Then, data was collected from the manufacturing CEO, who is known to have a high level of certification for quality system standards. Finally, all measuring items were used in an exploratory factor analysis to run Harman's single factor test. According to exploratory factor analysis accounting for less than 50% of the variation, the results of the common method bias test demonstrate that there is no joint method bias (Ramdan et al., 2022).

Additionally, a Confirmatory Factor Analysis (CFA) or Goodness of Fit test was conducted on the variable measurement model of sustainability management accounting, environmental management systems, and organizational performance to further ensure the accuracy and credibility of the data gathered for this study. This analysis test aims to assess the reliability and validity of the measurement model. These measures were used to evaluate the goodness of fit and obtain statistically robust results. The results of the CFA analysis test showed that the measurement model met the criteria for assessing construct validity and reliability, as evidenced by a positive fit index including RMSEA (0.062); $\chi 2/df$ (2.625); TLI (0.945); CFI (0.952); GFI (0.907), AGFI (0.879) and p-value (0.000), all met the specified limits. As can be seen in table 2 below, these findings suggest that the measurement model is appropriate for evaluating concept validity and reliability:

Table 2. Goodness of Fit

	Cut of Value	Result	Information
RMSEA	< 0.08	0.062	Significant
χ^2/df	< 3.00	2.625	Significant
TLI	> 0.90	0.945	Significant
CFI	> 0.90	0.952	Significant
GFI	> 0.80	0.907	Significant
AGFI	> 0.80	0.879	Significant
***p*-value**	< 0.001	0.000	Significant

To establish construct validity, convergent and discriminant validity need to be assessed. This study uses the methodology outlined by Hair et al. (2006) to confirm construct validity, specifically focusing on convergent validity. This involves analysis of item loading, composite reliability, and extracted mean variance (AVE) in the measurement model. Table 3 shows that the average value of evaluation (AVE), composite reliability score, and standard deviation of the loading factor for each construct all above the limits of 0.70 and 0.50 established by Samsudin et al. (2022). Table 3 below provides further information:

Table 3. Validity and Reliability Test

Indicator		Std. Loading Factor	Current Ratio (CR)	Average Variance Extracted (AVE)
Sustainability Management Accounting (SMA)				
Management Commitment	MAC1	0.820	0.904	0.704
	MAC2	0.877		
	MAC3	0.867		
	MAC4	0.788		
	MAC5	0.812		
Customer Focus	CUF1	0.889	0.929	0.724
	CUF2	0.870		
	CUF3	0.862		
	CUF4	0.821		
	CUF5	0.809		
Environmental Cost	ENC1	0.891	0.921	0.706
	ENC2	0.859		
	ENC3	0.816		
	ENC4	0.847		
	ENC5	0.781		
Environmental Regulation	ENR1	0.868	0.906	0.661

	ENR2	0.817		
	ENR3	0.822		
	ENR4	0.778		
	ENR5	0.775		
Environmental Safety	ENS1	0.834	0.890	0.672
	ENS2	0.822		
	ENS3	0.838		
	ENS4	0.781		
	ENS5	0.794		
Environmental Management System (EMS)				
Planning	PLN1	0.861	0.924	0.711
	PLN2	0.900		
	PLN3	0.822		
	PLN4	0.841		
	PLN5	0.785		
Implementation and Operation	IAO1	0.778	0.898	0.639
	IAO2	0.823		
	IAO3	0.815		
	IAO4	0.805		
	IAO5	0.774		
Auditing and Evaluation	AAE1	0.812	0.889	0.619
	AAE2	0.829		
	AAE3	0.823		
	AAE4	0.736		
	AAE5	0.725		
Checking and Correction Action	CCA1	0.894	0.927	0.720
	CCA2	0.852		
	CCA3	0.859		
	CCA4	0.841		
	CCA5	0.794		
Organizational Performance (OP)				
Financial Performance	FIP1	0.842	0.915	0.684
	FIP2	0.834		
	FIP3	0.846		
	FIP4	0.817		
	FIP5	0.794		
Operational Performance	OPP1	0.881	0.920	0.701
	OPP2	0.859		
	OPP3	0.826		
	OPP4	0.854		
	OPP5	0.751		

To determine if the independent factors have a meaningful impact on the dependent variable, a regression test of the relationship between the variables is used to test the hypothesis. Three hypotheses about the relationships between variables are examined in this study using multiple regression: the influence of sustainability management accounting on environmental management systems, the influence of sustainability management accounting on organizational performance, and the influence of environmental management systems on organizational performance.

Table 4. Multiple regression test

Hypothesis			Unstd. Estimate	Std. Estimate	*p*-Value	Information
Environmental Management System	←	Sustainability Management Accounting	0.736	0.582	0.000	Significant
Organizational Performance	←	Sustainability Management Accounting	0.773	0.529	0.000	Significant
Organizational Performance	←	Environmental Management System	0.193	0.167	0.038	Significant

The multiple regression analysis results in Table 4 above indicate that the first hypothesis, which asserts that sustainability management accounting effects the environmental management system, achieves a significant value of 0.05. Thus, it can be concluded that the study's first hypothesis is correct. The second hypothesis, which claims that sustainability management accounting has a considerable impact on organizational performance, then achieves a significance value of 0.05, indicating that it is likewise acceptable. A significant value of 0.038 was obtained for the third hypothesis' claim that the environmental management system affects organizational performance; nevertheless, this value is still below the threshold that allows for the hypothesis to be accepted. The cutoff value needed to accept the hypothesis is 0.05. This study's third hypothesis can therefore also be accepted. The experiment to ascertain if environmental management systems can act as a buffer between the indirect effects of sustainability management accounting on organizational performance is summarized in Table 5 below.

Table 5. Indirect Effect

	Sustainability Management Accounting (SMA)	Environmental Management System (EMS)	Organizational Performance (OP)
Environmental Management System (EMS)	0	0	0
Organizational Performance (OP)	0.260	0	0

The results of the indirect effect test using environmental management system indicators, which function as a mediator in the relationship between sustainability management accounting and organizational performance, yield an indirect effect value of 0.260. The threshold value of > 0.038 needed for the hypothesis to be accepted is already exceeded by this number. Thus, the environmental management system might act in part as a mediator in this case. The relationship between organizational performance and sustainability management accounting is mediated by environmental management systems. Therefore, it can be concluded that the fourth hypothesis of this study, which postulates that environmental management systems may act as a mediator in the relationship between sustainability management accounting and organizational performance, is correct.

The first hypothesis of the study is accepted based on the results of the first hypothesis, which are supported by a result of 0.529 and a significance level of p 0.005. This indicates a high association between sustainability management accounting and environmental management systems. The evidence supports the idea that sustainability management accounting benefits sustainability management accounting. Previous research also confirmed the direct influence of sustainability management accounting on sustainability management accounting, in line with the research of De Oliveira Neves et al. (2017) and Fuzi et al. (2022) which emphasizes the close relationship between sustainability management accounting and environmental management

systems. Businesses can effectively enhance their sustainability management accounting processes by using the environmental management system as a framework. The statistics support the second hypothesis of this study, which states that there is a substantial positive link between organizational performance and sustainability management accounting. This result is consistent with earlier studies, such as those by Zyznarska-Dworczak (2018), who also discovered a link between organizational success and sustainability management accounting. Russell et al. (2017) also demonstrates the significance of the link between these variables.

The third hypothesis was also tested, and the results indicate a relationship between environmental management systems and organizational performance that is statistically significant with a correlation of 0.167 and a p-value that is 0.038 less than the threshold of 0.050. If the third hypothesis is correct, it means that the environmental management system has a big part to play in how well relationships with organizational performance emerge. This result is in line with studies by Fuzi (2020) and Herghiligiu et al. (2019), which found a substantial correlation between organizational performance and the environmental management system. As a result, it is advised that businesses in this sector think about putting an environmental management system in place to enhance organizational performance. Additionally, the indirect impact test findings for the fourth hypothesis yielded a value of 0.260 (> 0.038). The association between sustainability management accounting and organizational performance can be somewhat mediated by the environmental management system if the p value is less than 0.05. As a result, it is crucial to adopt environmental management systems and sustainability management accounting to enhance organizational performance (Olaoye & Adekanmbi, 2018). Organizations, particularly those in the Indonesian manufacturing sector, might benefit from using an environmental management system as a standard operating procedure to enhance organizational performance and sustainability management accounting.

Conclusion

According to the study's findings, environmental management systems and sustainability management accounting have a substantial positive link. There is also a large positive correlation between sustainability management accounting and organizational performance. Additionally, there is a strong positive correlation between organizational performance and the environmental management system, and the environmental management system plays a role in mediating this relationship between organizational performance and sustainability management accounting. Businesses need to think about developing an environmental management system as a framework for improving sustainability management accounting practices and organizational performance in the context of Indonesia's manufacturing industry. Businesses can increase operational productivity and efficiency while achieving sustainability goals as outlined in SDGs targets by integrating an environmental management system into daily operations.

Theoretically, this study stresses how crucial it is to understand the function of environmental management systems (EMS) in the manufacturing sector of Indonesia. In particular, this study looks at how environmental management systems affect the relationship between operational performance (OP) and sustainability management accounting (SMA) in the manufacturing sector. This study investigates the relationships between operational performance and environmental management systems, operational performance and sustainability management accounting, environmental management systems and operational performance, and the mediating role of environmental management systems in the relationship between operational performance and sustainability management accounting using empirical data. In a setting that is always

changing, the industry may enhance their sustainability management accounting by knowing these relationships.

Additionally, the practical ramifications of this study offer helpful suggestions for companies in the manufacturing sector to embrace sustainable management accounting (SMA), environmental management systems (EMS), and enhance organizational performance (OP). In order to develop environmental management systems, take into account sustainable management accounting strategies, and evaluate the effectiveness of organizations supporting sustainability accounting, the findings of the inquiry have practical applications to the Indonesian manufacturing sector. The relationship between these three criteria is established in this study, which helps to better understand sustainability management accounting, environmental management systems, and organizational performance. This study offers a framework that manufacturers can use as a reference for implementing cutting-edge methods that incorporate sustainability management accounting, environmental management systems, and organizational performance. In addition, policymakers can utilize the findings to control and execute how Indonesian producers are using sustainable management accounting.

This study also has a number of limitations, including the fact that, despite covering a wide range of industries, it only uses surveys and is only applicable to Indonesia's manufacturing industry. The results of this study provide important light on the relationship between organizational performance in the Indonesian manufacturing sector and environmental management systems and sustainability management accounting. Thus, it is hoped that this research will be useful for decision makers in various industries in Indonesia. The author also strongly recommends that future research with the same context be carried out. One of the challenges faced by researchers is the low response rate to the questionnaire. Researchers may need to use different communication channels, such as post or email to increase response rates.

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