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Environmental Management Accounting in Malaysian Electrical and Electronic Manufacturing Industry

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Abstract

EMA plays an important role in the practice of managing environmental activities in the manufacturing industry. The objective of this paper is to examine the critical success factors of Environmental Management Accounting (EMA) in Malaysian electrical and electronic manufacturing industry. The paper is prepared by reviewing the relevant literatures on EMA. This framework could provide guidance to the Malaysian electrical and electronics manufacturing industry to improve the EMA. The conceptual framework developed in this study can be used as a guideline for implementing the EMA. The population of this study is focused on the manufacturing industries of electrical and electronics. Therefore, the expected output shows that this research can recognise the critical success factor of the EMA is important to the Malaysian electrical and electronics manufacturing industry. This study suggest that practitioners can also recognise that the implementation of EMA is important to the Malaysian electrical and electronics manufacturing industry.

Keywords: Environmental Management Accounting, Electrical, Electronic, Manufacturing Industry

Introduction

From a global perspective, Malaysia has highlighted environmental issues within the organisation. Malaysia has recognized that environmental management is important in the manufacturing industry (Sidin & Sham, 2015). This is because the Malaysian manufacturing industry concerns about environmental issues to achieve sustainable development. However, Malaysia still implements best practices in environmental management accounting. One of the practices to be taken into account in this study is environmental management accounting (EMA). This is because the implementation of EMA is still lacking in organizations especially in

developing countries such as Malaysia. According to Gunawardena and Dissanayake (2021), there is still a lack of implementation of EMA on environmental impacts and environmental awareness in the organization. The authors state that EMA is one of the strategic management accountings that is important for improving performance in the Malaysian manufacturing industry. Therefore, there is a significant gap in this study on EMA for the Malaysian electrical and electronics manufacturing industry.

In addition, EMA has been implemented within the organization to overcome the limitations of conventional management accounting which is lacking in providing information related to environmental management (Fuzi et al., 2016). Sari et al (2021) support that EMA can manage environmental activities such as cost savings, improve environmental processes, and improve the organization's environmental improvement. In this regard, EMA is a practice that can assist organizations manage environmental activities to achieve good performance. Therefore, EMA can be implemented in this study to improve the performance of the Malaysian electrical and electronics manufacturing industry.

Agustia et al (2019) noted that EMA plays an important role in the practice of managing environmental activities in the manufacturing industry. EMA is an important practice for environmental management to manage the environment in the organization. EMA is to assist organizations in managing environmental activities such as environmental costs, quality environmental management, and environmental improvements. EMAP also covers environmental costs such as analysing the cost of environmental protection, waste, and energy. Therefore, EMA can be used in the Malaysian electrical and electronics manufacturing industry to reduce environmental costs.

This paper is organized as follows. The literature review is presented in EMA while the proposed conceptual framework is described in methodology. Finally, the conclusions based on this study.

Literature Review

Environmental Management Accounting (EMA)

The environmental issue has become one of the growing issues over the past few years. Some of the focus of environmental issues include air pollution, water, chemical waste, and global warming carried out by industrial activities. In the 1980s, the profession of accounting and accountant has begun to play an important role in the effort to solve environmental problems and management accounting also addresses environmental issues (Bouma & Veen, 2002). To improve EMA, environmental awareness is to improve environmental management in the organization (Fuzi et al., 2019; Wang et al., 2019). Most of the research is related to EMA and is focused on the manufacturing industry (Chathurangani & Madhusanka, 2019). This is because the manufacturing industry has become aware of the environmental issues resulting from the operations carried out. This can help in reducing environmental impacts, improving environmental programs, environmental management, and performance. The implementation of EMA in the electrical and electronics manufacturing industry operating in Malaysia can help reduce environmental issues.

Several studies have shown that EMA can be important for reducing costs in organizations. As proposed by Nga and Dao (2020), EMA helps to increase interest in the manufacturing industry to improve environmental management such as reducing emissions, energy efficiency, and water consumption. Additionally, EMA focuses on environmental information related to materials, energy, water, and also environmental cost information (Fuzi et al., 2019). Therefore, the EMA benefits the Malaysian manufacturing industry to manage environmental management including energy efficiency, reducing pollution reduction, and cleaner production.

Dimensions of EMA

Monetary Environmental Management Accounting (MEMA)

Nordin et al (2020), stated that term of Monetary Environmental Management Accounting (MEMA) is used to cover all internal organizations environmental accounting tools and procedures that measure environmental financial and economic impacts in monetary units. The MEMA can be seen as expanding the scope for further developing or refining conventional accounting financial units, as it is based on conventional accounting system methods. Moreover, costs and profits in financial information related to activities or flows affect the environment (San et al., 2018). Thus, MEMA provides critical environmental cost details necessary to control environmental efficiency.

Physical Environmental Management Accounting (PEMA)

Physical Environmental Management Accounting Information (PEMA) refers to the flow and use of energy, water, materials and waste. PEMA information is focused on the idea that all the resources, energy, and water. The physical amount revealed by the analysis can then be converted into monetary value (San et al., 2018). The PEMA represents the environmental impact of organization-related operations designed to meet the growing demand from diverse internal and external stakeholders to obtain details on the company's environmental decisions (Nordin et al., 2020). Thus, PEMA covers all existing organizational environmental accounting methods and processes that discuss environmental impacts across organizational structures.

Research Methodology

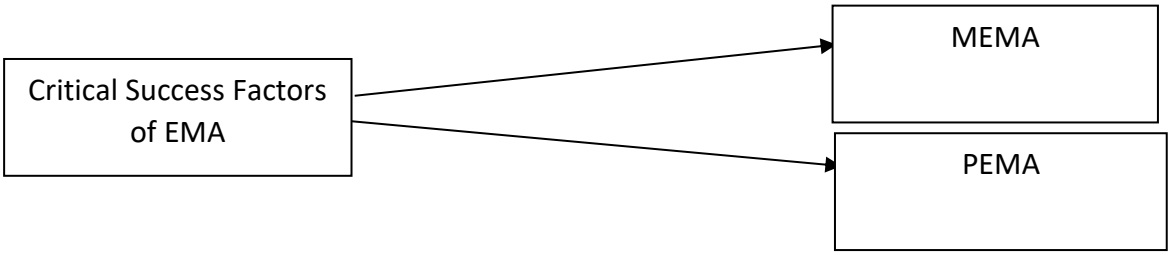
The research uses a quantitative approach. For IBM SPSS Statistics, descriptive statistical analysis is used to determine percentage and frequency distribution to analyze sample data. Specifically, the frequency distribution is used to summarize the respondent's profile, the mean to indicate the data concentration, and the standard deviation to indicate variability. To implement SEM, the Analysis of Moment Structure (AMOS) software will be used in this study. framework is developed and tested using structural equation modelling (SEM) based on previous studies.

While factor analysis such as exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) will be used to study the constructs in this study. For EFA, analysis of the main components with varimax rotation for this study will be used. The data will check whether it is appropriate to run the EFA by Kaiser-Meyer-Olkin, the Bartlett spherical test, the amount of variance explained, and the matrix results of the rotated components. This is followed by the CFA which is used to verify the route diagram by determining the merit-conformity index to check the suitability of the model. In addition, the survey will be conducted in two stages,

namely the pilot study and the main study. Pilot studies are carried out to ensure the validity and reliability of the instrument. Expert validation will also be carried out in this study to improve the questionnaire. The population is focused on the manufacturing industries of electrical and electronics. Malaysia's electrical and electronics manufacturing industry was chosen because it plays an important role in economic growth and contributes significantly to the manufacturing sector in Malaysia. This is because the manufacturing sector is a key sector of the economy in Malaysia. Data will be collected using questionnaires from electrical and electronic manufacturing companies selected from the Federation of Malaysian Manufacturers Directory [FMM] (2022). In this research, the unit analysis is the company. Researchers select respondents from those who hold senior management, middle management, and other positions that are considered quite knowledgeable about the company's practices, given their participation in day-to-day operations, managing the company's financial activities, and participation in environmental-related activities (Jalaludin et al., 2011).

A Proposed Conceptual Framework

The proposed conceptual framework aims to examine the critical success factors of EMA in Malaysian electrical and electronic manufacturing industry. Figure 1 represents the proposed conceptual framework by the researcher.



Notes: MEMA= Monetary Environmental Management Accounting, PEMA= Physical Environmental Management Accounting

Figure 1. The Proposed Conceptual Framework

Both parts of the EMA (MEMA and PEMA) incorporate environmental information into the company's various strategic and operational activities (Ong, Noordin, Kassim, & Jaidi, 2018). In summary, MEMA provides a link between the company's environmental-related activities and past, present, and future stocks and financial flows. Furthermore, the information provided by the PEMA promotes transparency, in particular on the company's environmental activities. Similar to the MEMA, PEMA enhances ecological sustainability by highlighting environmental-related information. Hence, it allows for a better introduction of the involvement of both accountants and environmental managers in the EMA adoption.

Conclusion

In conclusion, the research is to identify the critical success factors of EMA. For practical implications, this research provides important guidelines for the Malaysian electrical and electronics manufacturing industry, as well as related companies to implement EMA to improve organisational performance. The concerns of the electrical and electronics manufacturing industry on environmental issues not only to environmental management but also the performance of the organization. Therefore, Malaysian electrical and electronics

manufacturing industry may need to consider EMA measurement as beneficial to their companies, especially for environmental management accounting.

This study suggest that practitioners can also recognise that the implementation of the EMA is important to the Malaysian electrical and electronics manufacturing industry. Malaysian electrical and electronics manufacturing industry can improve the EMA to achieve the organisation's goals. This research is expected to be leveraged by academics and practitioners to enhance their knowledge of the critical success factors of EMA which in turn enables them to assist Malaysian electrical and electronics manufacturing industry to improve environmental management accounting.

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