

ENVIRONMENTAL MANAGEMENT ACCOUNTING PRACTICES AMONG SHARED SERVICES CENTRES

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ABSTRACT: *Issues on business environmental impacts and obligation towards proliferating regulations are rapidly accelerating. This has become an eye-opener for many organizations to incorporate environmental information into their business strategies. Although environmental management entails greater additional costs, industry players should acknowledge that environmental management accounting (EMA) can provide useful information needed to manage and improve performance that leads to sustainable development. The main objective of this study is to determine the extent of EMA practices as well as to investigate factors influencing the EMA among shared services centers (SSCs) in Malaysia. Built on the institutional theory, data was collected through questionnaires. The findings exposed that SSCs practice both monetary and physical EMA but at a low level. Also, the study reveals that coercive pressures imposed by the authorities had led to being SSCs' most prevailing factor for implementing EMA.*

Keywords: Environmental management accounting practices, Shared services centers, Institutional theory

1. INTRODUCTION

The effect of globalization due to rapid business expansion and its activities' effects had spurred many firms to become more mindful of the environment. Also, environmental sustainability has received significant attention amongst regulators, environmentalists, and societies from all across the globe. Environmental regulations and standards have been designed to internalize the costs of these externalities through hefty penalties and fines. Quality skills and positive attitudes concerning environmental management and performance need to be implanted among employees to achieve eco-efficiency and economic growth [1]. Implementation of such a new system is a demanding process as it requires a change in the status quo of the firms' culture [2]. Thus, EMA forms an integral part of the environmental accounting infrastructure. EMA practices are a set of accounting tools that integrates data from financial accounting, cost accounting, and material flow balances so that material efficiency is increased whilst environmental impacts or risks are reduced effectively [3].

Over the past two decades, there has been a growing emphasis among manufacturing firms [4], higher learning institutions [5], public local entities [6], and hotel industry [7] on the need to address environmental management. Their findings proved that the firms had made positive progress in terms of developing and applying management practices and tools focused on improving their environmental performance by integrating environmental considerations into their management decision-making processes. However, very little is known about the green practice among Shared Service Centres (SSCs) in Malaysia. Thus, to gain better insights and to fill in the void about the extent of EMA practice implementation and determine factors influencing the practice of EMA among Shared Service Centres (SSCs) is deemed needed.

This study attempts to enhance EMA body of knowledge specifically targeting on SSCs environmental practices due to Malaysia is ranked as the world's third most attractive location for shared services [8] focusing on high-value Finance and Accounting (F&A) services to boost its presence in the global shared services market [9]. Furthermore, the

SSCs industry in Malaysia is rapidly growing and delivering more value-adding services.

There are several definitions of an SSC, which have been provided in the literature. According to [10] shared services were referred to as an arrangement that provides services to the other clients who are other independent business units within the same company group. Today's organizations have been persistently pressured to increase organizational value and reduce costs whilst maintaining service quality and improve efficiency. Shared services integrate business operations, processes, and services to internal customers at a lower cost, but at a higher quality in meeting their goal in improving customers' satisfaction and enhancing organizational value [11]. Shared services also avoid duplication of costly processes and redundant tasks, thereby increasing organizational efficiency entirely [12]. At times, some of these support services are managed by an outside vendor instead of in-house. Functions supported by SSCs are such as business process outsourcing, transactional back-office support services (human resource, finance, and accounting), front office services (including customer-related services, namely marketing or contact center), information technology (IT) outsourcing and many more [13].

As mentioned in the Shared Services Outsourcing Network Analytics' data [8], there are currently 229 captive or hybrid Shared Service Centres (SSCs) in Malaysia. The majority of these SSCS are located in Kuala Lumpur, Selangor, Cyberjaya, and Penang. Presently, the country has shared services divisions of banking, financial services and insurance, energy, and transport, and logistics firms [14].

Regardless of the many benefits of EMA, the level of implementation of EMA is considerably minimal among organizations in many countries typically in developing countries, like Malaysia [4]. Owners and managers of firms fail to see the advantages of enhancing environmental performance and reducing impacts [15]. Therefore, this scenario leaves a significant gap in studies on EMA practices related to environmental activities specifically in the area of services. It is hoped that the findings of this study will positively raise awareness on the importance of adopting

appropriate EMA practices which are crucial for SSCs to attain sustainable development.

The rest of the paper is organized as follows; the next section briefly presents the literature review on EMA practices, the institutional theory as well as the institutional pressure on EMA implementation. Additionally, the development of hypotheses is explained in the same section. The research methodology is described in the third section. In the fourth section, contains the data analysis and reporting findings. Lastly, conclusions are drawn, and limitation of the study is briefly explained in the final section.

2. LITERATURE REVIEW & HYPOTHESES DEVELOPMENT

A. *Environmental Management Accounting*

The [16] defined environmental management accounting as the process of identification, collection, analysis of environmental information for internal decision making. EMA caters to the management information needs of managers for corporate activities that affect the environment, as well as environment-related impacts on the corporation. There are two types of environmental information; physical and monetary. Both types of information simplify the identification of the size and the effect of firms' environmental impacts and for compliance purposes [17]. This information is vital as different stakeholders require both kinds of information.

The physical environmental information shows the impact of company-related activities on the environment such as the use, flow, and rates of energy, water, and materials including material wastes [15]. The impact of these activities is measured in physical terms. For example, the volume of treated wastewater and released to the river, the total volume of energy used, and the volume of materials recycled. On the other hand, monetary environmental information is the monetized amount of this information such as environment-related costs, earnings, and savings. Monetary environmental information provides management with the ability to perform a better evaluation of the financial aspects of firm products [18].

Due to the increased stakeholders' interest in environmental issues, many companies are urged to publish the triple bottom line and sustainability reports. These reports are prepared according to the Sustainable Reporting Guidelines of the Global Reporting Initiative. The Global Reporting Initiative (GRI) is a guideline on voluntary disclosure for companies to report on their activities that have caused significant economic, environmental, and social impact [19].

According to [17], despite the myriad of benefits that EMA practices can offer, there are still doubts about the acceptance of EMA among companies in Malaysia. Hence, the institutional theory suggested that EMA is adopted not only for economic reasons but also due to legitimacy and political reasons, with the emphasis on institutional pressure.

B. *Institutional theory and its implementation of EMA practices*

The institutional theory perspective was derived based on theoretical insights from both sociology and economics [20, 21, 22]. This theory is beneficial in exploring how organizational structure and actions are shaped by

institutional forces, namely the government, professional bodies, and society that surround these organizations.

Reference [21] stated that the institutional changes could occur through three mechanisms; coercive isomorphism, mimetic processes, and normative pressures. It is worthy to note that these three mechanisms are not empirically distinct from one another and tend to overlap.

Coercive isomorphism

Coercive isomorphism is described as the organization's regulatory compliance with existing regulations. Evidently, the government and regulatory bodies are likely to intervene and influence organizations to obey to existing regulations.

EMA practices have been associated with factors such as national dependency, financial dependency, regulative environments, public exposure, and political purposes [17]. For example, from the context of USA firms, the focus of EMA is more prone towards recognizing and escaping from liabilities due to the challenging environmental liabilities regime and regulatory penalties [23]. According to [24] the investigation of factors relating to the adoption of non-financial performance measurement in four Japanese banks revealed that apart from economic and technical reasons, the design and use of performance measurement systems in the banks is influenced by coercive and normative pressure from top management and professionals in the firm. Their study also showed that coercive pressures imposed by the central bank's regulatory control, accounting standards and financial legislation, and socio-economic-political institutions as factors affecting the non-financial performance measurement adoption. Studies among manufacturing companies in Malaysia [17, 4] also exposed that there is some empirical support on the influence of normative pressures and coercive isomorphism. This proves that there is some influence of coercive isomorphism on the EMA adoption level. Thus, based on the above discussion, it can be hypothesized that:

H1a: There is a positive relationship between coercive isomorphism and EMA adoption level among SSCs.

Normative pressures

Normative pressures address the significance of voluntary adoption to lessen coercive pressures. Normative pressure stems from the habitual behaviors of individuals and their professionalism [21]. Two main sources of professionalism are education and professional networking.

Previous studies exposed that normative pressure also influences the extent to which organizations adopt EMA practices [25, 26, 17, 4, 22]. Interestingly, the field of accountancy can add up to the normative pressures because, in accounting, it is a norm to adopt and comply with standard requirements when faced with various transactions and issues [25, 22]. Thus, the management's competency [29] and the role of accountants [17] will contribute to the number of normative pressures faced, thereby, will eventually affect their management accounting practices.

A study conducted by [17] discovered that accounting associations and institutions of higher learning were found to have an important role in motivating manufacturing companies to increase their adoption of EMA, hence, their findings proposed that EMA practices were significantly associated with normative pressure. On the contrary, [4] respondents revealed that they had a relatively low normative

pressure concerning environment-related issues. Therefore, based on the above discussion, it can be hypothesized that:

H1b: There is a positive relationship between normative pressure and EMA adoption level among SSCs.

Mimetic processes

Mimetic processes refer to responses of an organization to proven techniques or practices of competing organizations whenever they are faced with uncertain situations [21]. The pressure to integrate management accounting systems with strategic priorities as well as a duplicating best practice approach for performance measurement systems from similar organizations can also be explained as mimetic factors [26].

There are some pieces of evidence to prove that mimetic processes will influence the extent to which companies adopt EMA practices. Reference [26] linked all three mechanisms of institutional theory to non-financial performance measurement among Finnish financial institutions. It was found that mimetic factors were the least to influence them in the implementation of EMA practices. From the case of [17] and [4], they had discovered that most manufacturing firms in Malaysia had experienced a moderate level of institutional pressure (mimetic) relating to environmental issues whenever they were facing doubts. Therefore, based on the above discussion, it can be hypothesized that:

H1c: There is a positive relationship between mimetic processes and EMA adoption levels among SSCs.

3. RESEARCH METHODOLOGY

The overall research study was to determine the extent of EMA practices as well as to investigate factors influencing the EMA practices among shared services centers (SSCs) in Klang Valley, Malaysia. Therefore, this study has adopted an electronic survey method through an online questionnaire for data collection purposes. The questionnaire was constructed based on the instruments derived from previous related studies [30, 19, 5]. Based on a random sampling method, a total of 220 formal questionnaires was given out, and 99 questionnaires were received with 89 valid, which represented 40.5% response rate. The respondents were from various departments of the SSCs and professional background. The low response rate was expected despite the increased awareness of environmental sustainability. Previous EMA study among Malaysian manufacturing firms had also recorded a low acceptable response of 32% [4] and 8% [17]. Three main sections are included in the online questionnaire. The first section requires respondents to indicate the extent of EMA practices in their firms. Whilst, the second section requires the respondents to select on a scale of 1 (strongly disagree) to 5 (strongly agree) regarding factors influencing EMA practices as adopted by the study of [26]. The last section gathers information regarding companies' demographics.

4. RESULTS AND DISCUSSION

A. EMA Practices & Factors Influencing EMA

Adapting from the study of [27], the second section of the questionnaire evaluates the level of the respondents'

organization's ability to generate and record data for both monetary and physical EMA. This information and its evaluation can assess the organizations' ability to use the information in daily operations and the level of disclosure in their annual reporting.

Table 1 exhibits the practices of EMA as well as factors influencing the practices. The mean score for MEMA and PEMA is 3.189 and 3.157 respectively, which indicates that most SSCs in Malaysia have low EMA practices and are not at an encouraging level. This somewhat shows that employees in SSCs are either unaware or unlikely to take part in the company's EMA practices, even though their company has an EMS certificate. This also suggests that all employees should undergo environmental training where environmental policies, procedures, and impacts are thoroughly discussed. Similar to [38], whereby there is a low level of EMA practices in the Brazilian financial institution and the respondents requested for more education and training on sustainability management accounting to equip their knowledge on how to incorporate sustainability into management accounting tools and techniques. Concerning the factors influencing EMA practices, the coercive factors record the highest mean score (3.623), followed by mimetic (3.494) and normative (3.444). A similar study by [17] and [4] also revealed that coercive pressure was the most dominant factor for EMA implementation.

Table 1. The overall result of descriptive analysis for EMA practices and factors influencing EMA Practices (N=89)

		Mean	Std. Dev.
EMA Practices	Monetary EMA (MEMA)	3.189	1.119
	Physical EMA (PEMA)	3.157	1.200
Factors influencing EMA Practices	Coercive	3.623	0.805
	Normative	3.444	0.859
	Mimetic	3.494	0.809

Tables 2 and 3 display the result for each practice of MEMA and PEMA. Amongst the MEMA practices, the highest four scores are the cost of material inputs (3.360), prevention, and other environmental management costs (3.225), followed by the cost of material outputs (3.213) and waste and emission costs (3.202). Meanwhile, the highest four scores for PEMA are energy utilized (3.360), followed by operating materials purchased such as spare parts and consumables in the production (3.270), water consumed at the operational hub (3.247) and solid waste such as waste paper, plastic containers and domestic waste (3.225).

Table 2. MEMA Practices (N=89)

MEMA Practices	Mean	Std Dev
Cost of material inputs	3.360	1.069
Cost of material outputs	3.213	1.163
Waste and emission costs	3.202	1.089
Prevention and other environmental management costs	3.225	1.095
Research and development costs	3.056	1.142
Environmental operating expenditure	3.169	1.100
Environmental capital expenditure	3.101	1.178

Table 3. PEMA Practices (N=89)

PEMA Practices	Mean	Std Dev
Raw materials	3.191	1.176
Packaging materials	3.079	1.227
Operating materials	3.270	1.126
Water	3.247	1.190
Energy	3.360	1.189
Products	3.169	1.263
By-products	2.899	1.149
Solid waste	3.225	1.146
Hazardous waste	3.090	1.311
Water waste	3.101	1.225
Air emissions	3.101	1.197

Table 4 below details the descriptive statistics for each of the factors influencing EMA practices. Respondents felt that coercive pressures received via the adherence to existing government regulations (3.966) and environmental laws (3.843) were the main reason for their companies implementing EMA. The results on factors influencing EMA practices due to coercive pressures are consistent with the view of institutional theory and a previous study [26]. Additionally, this also suggests that compliance with such regulations and laws is vital to assist companies in avoiding hefty penalties and fines.

Table 4. Factors influencing

Factors	Mean	Std. Dev.	
Coercive factors	Pollution incidents law	3.573	.851
	Government pollutions standard	3.753	.895
	Government regulations	3.966	.761
	Company's shareholders	3.640	.801
	Newspaper and TV	3.494	.676
	Environmental laws	3.843	.752
	Local communities	3.584	.850
	Company's customers	3.618	.805
	Environmental groups	3.517	.841
	Company's head office	3.663	.768
	Financial institutions	3.472	.785
	Company's labour union	3.404	.875
Normative	Motivation from staff training	3.472	.854
	Membership of a professional body	3.416	.864
Mimetic factors	Competitors	3.528	.854
	Other industrial organizations	3.449	.798
	Other leaders in the industry	3.472	.799
	Multinational organizations	3.528	.785

B. The relationship between coercive, normative and mimetic factors on EMA practices

Table 5 below exhibits the correlation matrix between the 3 IVs (coercive, normative, and mimetic factors) and DV (EMA practices). The distribution of data in this study was not normal, thus, results from the Spearman's rho correlation is analyzed. According to Spearman's rho correlation in Table 6, it can be seen that the correlation between the 3 IVs and DV are significant positive with a correlation of .505 (coercive), .352 (normative), and .415 (mimetic). The result indicates that there is a large correlation between coercive factors and EMA practices, whilst there is a moderate correlation between normative and mimetic factors and EMA practices.

Table 5. Correlation Analysis between EMA Practices and Coercive, Normative and Mimetic Factors

	Coercive factors	Normative factors	Mimetic factors
EMA Practices	.505**	.352**	.415**

** Correlation is significant at the 0.01 level (2-tailed).

The correlation analyses alone are insufficient to conclude the relationship between the variables, thus, regression analysis is deployed to better explain the associations. Table 7 below shows the regression model is significant ($p < 0.01$, $F = 7.535$) and has an adjusted R^2 of 21%. The results indicate that coercive pressures are significant at $p < 0.05$ and positively associated with the implementation of EMA. In other words, increasing coercive pressures by the government, policymakers, and regulatory bodies will positively affect the intention and willingness of SSCs to adopt EMA. Unfortunately, the results for normative and mimetic pressures do not contribute significantly to EMA practices. Therefore, only H1a is supported and accepted. These findings are similar to the findings discovered by [4].

Table 6. Regression Analysis of Coercive, Normative and Mimetic Factors

	Standardized Coefficients (beta)	t	Sig.
Coercive factors	.400	2.520	.014
Normative factors	-.077	-.492	.624
Mimetic factors	.138	.805	.423

$p < 0.01$, $F = 7.535$, $R^2 = 0.210$

5. CONCLUSION

This study determined the extent of EMA practices as well as to investigate factors influencing the EMA among shared services centers (SSCs) in Malaysia. The factors as addressed in the institutional theory namely coercive, normative, and mimetic were included to discover whether they affect the EMA implementation. The findings revealed that most SSCs in Malaysia have low EMA practices (both monetary and physical). This could suggest that a company may be excellent in creating an environmental policy but may not be excellent at disseminating or communicating it to all staff. This also calls for more training and education to be done to heighten the awareness and importance of EMA which not only will ensure the organization's sustainable development but also safeguard the entire stakeholder's well-being.

Next, with regards to factors influencing EMA practices, the study exposed that the coercive factors record the highest mean score as compared to mimetic and normative factors. It was also discovered that there was a large correlation between coercive factors and EMA practices. Furthermore, to further strengthen the findings, regression analysis was conducted to investigate the relationship between coercive, normative and mimetic factors and EMA practices. It revealed that only coercive pressure is significantly and positively associated with the implementation of EMA. This is in a similar vein to studies done by [26] and [4]. Therefore, only H1a is supported and accepted. On the other hand, there was no evidence to support H1b and H1c.

This study emphasizes the imperative role of various authorities in championing environmental sustainability. The government, specifically the Ministry of Energy, Science, Technology, Environment, and Climate Change and policymakers have been actively involved to further enhance the awareness and instill the disciplined practice of EMA in SSCs. However, proper guidelines and training need to be conducted for all levels of employees. A tax incentive could be introduced by the Inland Revenue Board of Malaysia to stir up interest among SSCs to adopt good EMA practices. Professional bodies typically the Malaysian Institute of Accountants (MIA) and the Institute of Engineers Malaysia (IEM) could put on a more aggressive role in promoting EMA among accountants and engineers as well as expose the benefits of having efficient environmental cost management. Both schools and higher learning institutions can play their part by educating students to become responsible and competent future leaders that give attention to environmental sustainability.

Similar to every empirical study, this study has its limitations. Firstly, it is limited to very few SSCs in Klang Valley, thus, the findings and conclusions drawn from this study are representative of the Malaysian SSCs context only. Next, the results are descriptive and may not be able to explain the full extent of EMA adoption and its relationship with institutional pressures. Perhaps it will be more appropriate for approaches such as case study and experimental designs to be deployed instead. This paper suggests that future research should include employees from every department and look into other industries for more robust results.

In conclusion, it is worthy to note that environmental management issues will remain a challenge and should be embedded as a core value of every organization. SSCs will need to understand the environmental footprint of their business, carefully analyze the impact of their business activities, and sustainably manage it for future generations.

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