

Lecture Notes in Computer Science:
**Exploring the ISO 14001 Environmental Management
System (EMS) Towards SMEs Organizational Performance:
Case Study of Southern Malaysia Furniture Manufacturers**

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Abstract. Environmental issues associated with industrial activities such as gas emissions and toxic chemicals waste caused the nature imbalance effects. Therefore, ISO14001 standard was introduced and employed globally. Previous studies related to ISO 14001 in Malaysia are focused at high technologies and construction sectors. Thus, this research aims to determine the correlation between ISO 14001 orientation factor and environmental management capability (EMC) of suppliers towards SMEs organizational performance. The surveys were distributed to various ISO 14001 certified furniture manufacturing companies registered under Federation of Malaysian Manufacturers in southern region of Malaysia. The data were collected among 70 respondents at the managerial and production level. Efficient production and EMC of suppliers' factors are significantly correlated to organizational performance. Thus, companies are recommended to employed green supply chain practices and eco-efficiency production processes. This quantitative case study is important to SMEs in the specific area in order to provide knowledge on the impact of ISO14001 into production and operation.

1 Introduction

The importance of preserving the environment while increasing production requires a difficult balance to achieve. In Malaysia context, the government's response to the worldwide suggestion to implement sustainable production, environmental management systems play an important role. The implementation of ISO14001 Environmental Management System (EMS) has gained much interest by manufacturers due to the ability of minimizing environmental impact and simultaneously obtaining various benefits from the adoption (88% of the studies showed positive impact on organizational performance)[1]. Thus, it is vital for manufacturers to join in the bandwagon because manufacturing sector has contributed 29.4% to Malaysia GDP index in year 2013[2] the second highest sector after the service sector. SMEs in general could contribute 70% of all industrial pollution [3]. Thus, improving the environmental performance of SMEs is vital, irrespective of their size and sector, because they are a crucial part of the enterprise society that collectively can contribute to sustainable development.

As the demand for sustainable development in growth, there is only a few companies especially small manufacturing companies obtain ISO14001 certification. Among reasons often discussed in previous studies are the companies still doubtful with the impact of ISO on organizational overall performance and financial

performance[1]. Based on ISO survey in 2011; in total, there were only 1,934 companies in Malaysia are accredited with ISO 14001 with total increment of 16% compared to 2010. This report implies increased awareness among companies in Malaysia on the importance of well-organized environmental management systems. Nonetheless, there is a lack of study from southern area in Peninsular Malaysia specifically furniture industries. This study attempts to bridge the gap by identifying the effect of ISO14001 EMS implementation towards furniture industries organizational performance. In contrast with the study carried out by [4], previous study was conducted in Klang Valley. Meanwhile, the study focuses on office based furniture product. Hence, the need for this study is imperatively important. Additionally, the number of companies in the furniture sector with ISO 14001 accreditation is very low when compared with the major furniture exporter such as Europe. Therefore, the next section discusses some issues and awareness of the importance of EMS among furniture manufacturers in Malaysia.

1.1 Malaysia Furniture Industry

The Malaysian furniture industry today has transformed into a technologically advanced multi-billion ringgit industry from a traditional, domestic cottage-based production in the beginning years in 1980s. With the furniture industry's adoption of high technology production manufacturing capabilities coupled with greater emphasis on design, market expansion and aggressive promotional efforts, the Malaysian furniture industry has the potential to increase exports for a bigger global market share. The furniture industry is highly export-oriented with more than half of its production are destined for overseas market which accounted 3% value of global exports. In 2013 for instance, Malaysia exported RM7.4 billion worth of furniture. Malaysia ranked as the eighth largest exporter of furniture in the world and third in Asia with the exports destined to more than 180 countries. According to Malaysian Timber Corporation, in 2012, Malaysia exports more than RM2.0 million worth of furniture to United State with wooden furniture were recorded as the highest exported furniture. Besides these traditional markets, Malaysian furniture has also gained access to the markets in Russia, New Zealand, South America, Middle East and Africa.

Furniture manufacturing has been receptive to management tools that could increase productivity. According to [4] factors that hinder implementation of ISO 14001 among SMEs in Malaysia is due to a very high cost, lack of customer demand, lack of government incentives and lack of experts to implement and maintain the system. This is also supported by the varied demands by different market segments. However, with the country's MyHijau agenda and the need for companies to provide eco-friendly product resulted in companies adopting environmental management systems. Most of the companies implement ISO 14001 on regulation bases as required by the parent company. Companies usually adhere to the EMS because the requirements and policies set forth by the parent company and not done on a voluntary basis. The implementation of ISO 14001 in improving the environmental performance of SMEs is vital for the survival irrespective of their size and sector because SMEs are the enterprise society that collectively can contribute to sustainable development. ISO14001 can be applied to businesses of all sizes and shapes. As for SMEs, the benefits of using ISO standards include opening up of export markets, increased efficiency, and increased credibility as well as confidence. Research done by [5] supported that ISO14001 EMS implementation has make improvement on the Malaysian SMEs performance. In the context of this study, the concentration is the Southern region SMEs. Based on SME Corporation Malaysia, it is recorded that there are 4804 SMEs in Johor area with 3201 companies of the total number are manufacturing companies while 1603 are from service sector. To further minimize the scope of research, the focus is mainly concentrated on furniture manufacturing industry. According to Federation of Malaysian Manufacturers (FMM) 2012, there only 82 companies certified with ISO14001 in southern area in which only 5 companies from Kluang and 6 companies from Batu Pahat have obtained ISO14001 certification.

Although a number of studies had proven that ISO14001 certification shows a positive impact on company's performance, organizations are still contemplating and argue about the impact of ISO14001 on environmental situation [6] as well as firm's

performance, one of the reason is because the deployment of ISO14001 standard is diffused in a different way across the globe. Furthermore, there is no international standard guideline to cope with the diverse environmental policies in various countries. ISO14001 concentrates more on the processes neglecting to establish performance standard to measure actual impact [7].

Nowadays in Malaysia, consumers are increasingly concern about the environmental friendly products or services in the marketplace. Consequently, it becomes a trend to take part in the bandwagon of implementing environmental management system such as ISO14001 in the business in order to stay competitive in current market. Despite the fact that, [8] argued the ISO14000 principle only provides framework to improve environment performance within the firm's operation boundaries instead of through the supply chain. Additionally, [9] reinforced that organization often concentrates merely on the issues within the organization but neglected the negative spill-over effects from the poor environmental performance of its supply chain partners. Managers realized a large and growing amount of environmental risk can be found in company's supply chain, particularly from small- and medium-sized enterprise (SME) suppliers [10]. Furthermore, community stakeholders rarely discern between an organization and supplier's poor environmental practices [11]. From the literatures, it is clearly seen that there is a lack of concern about the environmental management capability (EMC) of suppliers.

Hence, an international guideline is suggested to be executed universally in order to solve orientation problem. While, firms are encouraged to put more attention on EMC of suppliers such as green purchasing in order to enhance environmental performance throughout the supply chain by working with high level EMC of suppliers. Because purchasing is at the beginning of a green supply chain, a firm's environmental efforts cannot be successful without integrating environmental goals into purchasing activities [12]. This study attempts to answer two questions as follows; what is the impact of ISO14001 orientation and EMC of suppliers' factors towards organizational performance? The selections of factors are based on the significant results of previous studies in environmental management. Therefore, this study is vital to SMEs of furniture manufacturing industry in Malaysia in order to better implement environmental system to their production and operation. Moreover, academicians have additional knowledge on the relationship of orientation factors and EMC of suppliers towards organizational performance. Thus, it can be a foundation for further study on how orientation factors and EMC of suppliers could be enhanced to improve organizational performance.

2 Malaysian Standards (MS) ISO 14001:2004

ISO 14000 is an environmental management system standard, environmental auditing, labeling, environmental performance evaluation and life cycle analysis. ISO 14001 comprises four general areas: EMS, auditing, performance evaluation, labeling, life cycle assessment, and product standards [13]. The standards are divided into two general categories; organizational evaluation and product. It is a voluntary standard that intended to be used worldwide as a catalyst for create a favorable global environment and to improve the business and international trade. When implemented, it is expected to be able to standardize environmental control efforts in every country in form a global framework. These standards should be practical, useful and can be used by all organizations regardless the firm's size. In context of this study, the concentrate is MS ISO 14001:2004 Environmental Management System (EMS) because it is one of the most popular standard in Malaysia. This standard enables businesses of any sizes and sectors around the world to continuously minimize negative impact towards environment. A framework is provided for a company's environmental policy, plans and actions in its production activities, products or services. However, the company is required to commit to continual improvement and compliance with the applicable environmental legislation and regulations.

2.1 Organizational Performance

Organizational performance is the dependent variable (DV) in this study which is also the main concentrations of our findings. It is an analysis of a company's performance as compared to goals and objectives. Verweire & Berghe [14] defined

organizational performance in terms of the value that an organization creates using its productive assets in comparison with the value that the owners of these assets expect to obtain. Organizational performance is always been the dependent variable of interest for researchers in any area of management to evaluate organizations, actions and environments [15]. In recent years, organizational performance is being measured by large and small companies in various dimensions specifically in financial and non-financial performance [16]. Generally, financial performance refers to financial results of a company in monetary terms such as return on investment (ROI) and return on assets (ROA), while non-financial performance measures how well a company performs that is not in expressed in monetary units such as customer satisfaction and employee satisfaction. In the context of this study, only nonfinancial performance is discussed due to some constraints such as limited time to collect data and confidentiality of financial information.

2.1 Orientation Factor

In this research, orientation factor which is also one of the independent variables (IV) bring the meaning that how is the company oriented towards the implementation of ISO14001. Ann et al. [6] supported that company must committed to the plan of action on environmental management which indicates what the company is going to do, how it is going to go about doing it, and when it is to be done. The orientation factor is measured by previous scholars in multi-dimensional perspective. They perceived orientation factor as a combination of various elements such as waste management, product quality, and efficient production. According to [17], adoption of waste management was more prevalent to be described as cost-reducing practices. Besides, [18] supported that development of systematic approach for improving environmental performances resulted in an improvement of product quality. Dües et al. [19] stated in their research that green practices would also improve efficiency in the production process and could achieve better leaner results than those companies which do not. Therefore, these factors are investigated in this research in order to find out whether they influence organizational performance in terms of non-financial performance after the implementation of ISO14001.

2.1 Environmental Management Capabilities of Suppliers Factor

The concept of environmental management capabilities (EMC) is concerned with conserving natural capital, whereby firms reduce their environmental impact by such means as reducing waste in operations, using renewable inputs, and continuously improving their operations to sustain yield with minimum adverse impact to the environment [20]. EMC of suppliers is about suppliers' ability to perform business activities and respond to their buying firms in an environmentally friendly manner while attaining financial gains [21]. Based on [22], it is insufficient to focus intensely on improving the environment while suppliers provide harmful materials. EMC of suppliers is important to the implementation of green practices because 87% of customers would accuse firms of environmental negligence when their suppliers are environmentally irresponsible, e.g., use harmful chemicals, and refuse product recycling [21]. Corporate image and reputation will be affected because of the careless made by their suppliers. Wong et al. [21] further support that negligent behaviors of suppliers can devastate the green practice of their downstream partners. Therefore, this study intends to find out the relationship between EMC of suppliers towards organizational performance.

3 Methodology

The aim of this study is to identify the relationship between orientation factors and EMC of suppliers factors toward organizational performance among furniture manufacturers in Southern region of Malaysia. Data collection for this study was collected using cross-sectional survey design. The survey based approach allowed the research team to collect data pertaining to the attitudes of the respondents towards environmental business activities and their plant's environmental management system. The survey was also used to identify the most influential factors that impact

organizational performance. The sampling technique used in the research is purposive sampling in which researchers select subjects who are judged to be the representatives of the population [23] based on some criterions. The questionnaire consists of four sections which are demographic of respondents, orientation factors with 14 items and EMC of suppliers with 5 items towards organizational performance.

In this research, selected respondents are among top management, quality assurance staff and knowledgeable in the area of ISO14001 standard. The reason is because employees from basic level might not have the information about company's performance and they might not have deep understanding about ISO14001 standard that is applied in their companies [13]. A total of 110 questionnaires were self administered to the respondents. With a close follow up by telephone call, email, first reminder letter and personally meet up with the respondent to hand in the questionnaires, 70 completed questionnaires was received. The usable response rate is approximately 42%. The response rate is deemed to be exceptionally good as responses expected from mail survey are usually low [24]. The response rate of the study is considered to be good when comparing to other similar studies from previous research (47.4-57.7% response rate).

The developed survey has undergone pre-testing phase prior the distribution. Pre-testing of questionnaire is carried out to improve the readability and understandability of the target respondents [25]. According to [26] there are three of the methods that are used to pretest questionnaires: cognitive interviewing, respondent debriefing, and behavior coding of respondent/interviewer interaction. For the purpose of this study, the authors employed respondent's debriefing method. Respondent debriefing is incorporated into the actual data collection method of the survey. It can be included as part of a survey pretest, to provide input for revision for the production survey, or it can be included in the actual survey to provide input for the next administration of a continuing survey. In this research, 5 experts from the related area of the topic had been invited to participate in this questionnaire pretesting. Once the process is complete, the improved questionnaires were distributed to the appropriate respondent.

3.1 Conceptual Framework and Hypotheses

A conceptual framework in Fig. 1 is formed based on the literature review discussed in problem statement and literature. In addition, these hypotheses are generated to answer the two identified research questions. Total 12 hypotheses were developed in the study.

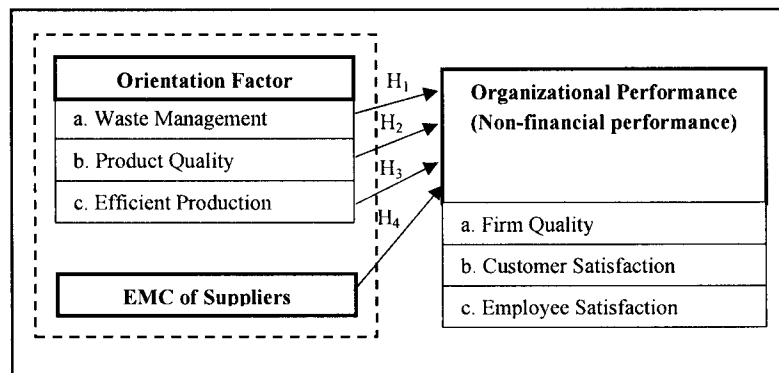


Fig. 1 Conceptual Framework

To understand the relationship of each ISO 14001 on furniture companies' performance, the following hypotheses were set up to be tested. Based on the literature review, these hypotheses will be stated based on a numbering system from H₁ until H₄. This style of hypotheses statement was chosen due to the nature of answering hypotheses using multivariate data analysis. The respondents were then asked to access their firm's systems using a five-point scale (0 = strongly disagree; 5 = strongly agree). A five-point scale has been widely used in research studies, as this Likert scale is designed to examine how strongly respondents agree or disagree with

statements in questionnaire. The developed hypotheses are;

- H_{1a}: Waste management has positive relationship with firm quality.
- H_{1b}: Waste management has positive relationship with customer satisfaction.
- H_{1c}: Waste management has positive relationship with employee satisfaction.
- H_{2a}: Quality of product has positive relationship with firm quality.
- H_{2b}: Quality of product has positive relationship with customer satisfaction.
- H_{2c}: Quality of product has positive relationship with employee satisfaction.
- H_{3a}: Efficient production has positive relationship with firm quality.
- H_{3b}: Efficient production has positive relationship with customer satisfaction.
- H_{3c}: Efficient production has positive relationship with employee satisfaction.
- H_{4a}: EMC of suppliers has positive relationship with firm quality.
- H_{4b}: EMC of suppliers has positive relationship with customer satisfaction.
- H_{4c}: EMC of suppliers has positive relationship with employee satisfaction.

3.2 Data Collection Instrument & Measurement

In the study each item measured were adopted from previous studies in related area. Table 1. until Table 3. exhibits the complete measurement items of dependent and independent variables.

Table 1. Organizational Performance Item Measurement and data type

No	Variables	No. Items	Sources	Data Categories
1.	Firm Quality	(1) Produce effective products. (2) Improve of products manufacturing formulas. (3) Produce consistent products with low defect rate. (4) Produce durable products with long expiration dates. (5) Gaining new technology. (6) Gaining new expertise. (7) Provide better service quality compared to competitors. (8) Gaining good reputations.	Adopted from [27]	Data type: Scale Data scaling: Five-point Likert Scale
2.	Customer Satisfaction	(1) Customers are always satisfied with products. (2) Purchase frequency of customers has increased. (3) The number of customer complaints has decreased.	Adopted from [28]	Data type: Scale Data scaling: Five-point Likert Scale
3.	Employee Satisfaction	(1) Employees are satisfied with the implementation of ISO14001 standard. (2) Low employee absenteeism. (3) Low employee turnover.	Adopted from [27]	Data type: Scale Data scaling: Five-point Likert Scale

Table 2. Measurement Items of Orientation Factor (IV₁)

No	Variables	No. Items	Sources	Data Categories
1.	Waste Management	(1) Dispose of hazardous waste appropriately	Adapted from [29]	Data type: Scale Data scaling: Five-point Likert Scale

		(2) Have a recycling program		
		(3) Use re-usable packaging		
		(4) Minimize product packaging		
		(5) Set measurable targets for waste reduction		
		(6) Take back packaging		
		(7) Take back end-of-life products		
2.	Product Quality	(1) Use non-hazardous materials	Adapted from [17]	Data type: Scale
		(2) Design products to be easy to repair and/or last longer		
		(3) Design products to be easy to disassemble and/or recycle		Data scaling: Five-point Likert Scale
		(4) Replace virgin materials with recycled materials		
3.	Efficient production	(1) Application of high-technology equipment to reduce waste and energy consumption	Adapted from [4]	Data type: Scale
		(2) Production planning and control focused on optimization and maximizing use of resource		Data scaling: Five-point Likert Scale
		(3) Processing methods focused on waste, pollutants and energy reduction		

Table 3. Measurement items of EMC of suppliers (IV₂)

No	Variables	No. Items	Sources	Data Categories
1.	EMC of supplier	(1) Company's suppliers are ISO14001 certified. (2) Second-tier supplier environmental evaluations are conducted by suppliers. (3) Suppliers are able to provide ecological proof of their products. (4) Specific environmental management guidelines are provided to upstream suppliers. (5) Suppliers cooperate with company to reduce environmental impact in the manufacturing processes.	Adopted from [21]	Data type: Scale Data scaling: Five-point Likert Scale

4 Data Analysis and Results

4.1 Demographic Profiles

Demographics information provides data about the respondents and it is essential to determine whether the individuals in a particular study are the representative sample of the target population in order to generalize the research. The first question for demographic is job position whereby majority of the respondents are managers which constituted to 45.71%. Besides that, 41.43% of the respondents have been working in the organization for 1 to 5 years while 48.57% of the respondents have been taking their current position for 1 to 5 years. The result shows that on average the companies have been established for more than 10 years. Most of the companies have been operated from 20 to 29 years. In terms of number of staff, 37.14% of the companies involved have a number of employees between 151-200 employees. This result indicates more medium enterprises adopt ISO14001 standard compare to small enterprises.

There are a total of 15 companies involved in this research. Majority of the respondents, which contributed to 71.43% of the overall percentage, claimed that the export number of product per year is approximately more than 50,000. As for the market penetration, 81.43% of the respondents answered that their companies enter 1 to 5 new markets in a year. Furthermore, 71.43% of them perceived that the growth in

export has become much higher after deploying ISO14001 standard. Lastly, 72.86% of the respondents stated that the improvement of productivity has been higher after the adoption of ISO14001 standard.

4.2 Reliability Test

Reliability of a measuring instrument is defined as its ability to provide similar results in repetitive measurements under identical conditions. Cronbach's coefficient alpha is used to measure internal consistency of the scale whereby the coefficient values indicate the average correlation among all of the items that make up the scale. The higher the values of Cronbach's alpha, the greater is the reliability of scale [30]. According to [31], 0.6 is the common threshold for sufficient values of Cronbach's alpha. The results appear to be all of the variables are reliable with Cronbach's alpha greater than 0.6. Table 4. below displays the reliability statistics for each variable.

Table 4. Reliability Statistics

Constructs	Cronbach's Alpha (α)	N of Items	No. of Item Deleted
Waste Management	0.726	7	None
Product Quality	0.863	4	None
Efficient Production	0.843	3	None
EMC of Suppliers	0.779	5	None
Firm Quality	0.854	8	None
Customer Satisfaction	0.724	3	None
Employee Satisfaction	0.830	3	None

4.3 Descriptive Statistics and Hypotheses Testing

The "Mean" obtained from SPSS gives the average score of their responses for each of the items that they answered [32]. Whereas, standard deviation is used to measure the dispersion of the data in which how close the entire set of data is to the average value. The lower the value of standard deviation, the closer is the data to the average value. The majority of the items obtained high mean score. The results here provide an indication that respondents do perceive there are benefits to certification as also reported by [6, 33]. Besides that, the values of standard deviation ranged from 0.721 to 1.227 indicate a general consensus amongst the respondents. Similarly, majority of EMC of achieved high mean score. In addition, the standard deviation is only slightly different with the range of 0.679 to 0.728. Additionally, respondents agreed with all the elements in non-financial performance, thus, a high mean score is achieved. The value of standard deviation that is ranging from 0.647 to 0.845 shows the data points are closely distributed around the mean. To conclude, the data points are clustered closely to the mean.

Kolmogorov-Smirnov is used in this research because the dataset for this research is 77 [34] which are more than 50 elements. For sample size less than 50, Shapiro-Wilk test is more appropriate [35] because Shapiro-Wilk test will reject the hypothesis that data is normal when the sample size is equal to 40. If p value of Kolmogorov-Smirnov is greater than 0.05, null hypothesis is accepted and the data is assumed to be approximately normally distributed. On the other hand, if p value is less than 0.05, the null hypothesis is rejected and the data is said to be deviated from the normal distribution [36]. In the study, all six constructs are not normal. Thus the data is not distributed normally. Hence, the study employed non-parametric analysis for hypotheses testing. Table 6. shows hypotheses testing results.

Table 6. Results of Hypotheses Tests

	Hypothesis	Correlation Coefficient	Inference
H _{1a}	Waste management has positive relationship with firm quality.	0.075	rejected
H _{1b}	Waste management has positive relationship with customer satisfaction.	-0.099	rejected
H _{1c}	Waste management has positive relationship with employee satisfaction.	-0.011	rejected
H _{2a}	Quality of product has positive relationship with firm quality.	0.128	rejected
H _{2b}	Quality of product has positive relationship with customer satisfaction.	0.063	rejected
H _{2c}	Quality of product has positive relationship with employee satisfaction.	-0.119	rejected
H _{3a}	Efficient production has positive relationship with firm quality.	0.651	accepted
H _{3b}	Efficient production has positive relationship with customer satisfaction.	0.563	accepted
H _{3c}	Efficient production has positive relationship with employee satisfaction.	0.535	accepted
H _{4a}	EMC of suppliers has positive relationship with firm quality.	0.661	accepted
H _{4b}	EMC of suppliers has positive relationship with customer satisfaction.	0.561	accepted
H _{4c}	EMC of suppliers has positive relationship with employee satisfaction.	0.571	accepted

5 Discussions and Conclusion

This research study has been conducted to determine the relationship between the independent variables (orientation factors of ISO14001 and environmental management capability (EMC) of suppliers) and dependent variable (organizational performance).

The results obtained from previous chapter showed that not all of the factors are significantly affected the organizational performance specifically on firm's quality, customer satisfaction as well as employee satisfaction. The effect of waste management on firm quality, customer satisfaction, and employee satisfaction were found to be insignificant (correlation coefficient = 0.075, -0.099, -0.011, $p > 0.05$). Based on the collected questionnaires, majority of the companies in the research areas do not emphasis on waste management in their production and operation. As a result, there is no relationship between the variables.

The effect of product quality on firm quality, customer satisfaction, and employee satisfaction was found to be insignificant (correlation coefficient = 0.128, 0.063, -0.119, $p > 0.05$). This proved that product quality is less important by the companies involved. Majority of the companies do not design their products to be easily repaired and last longer. Besides that, they rarely focus on replacing original materials with recycled materials. This finding is supported by the study of [6] which has stated that quality of products were not significantly related to firm's performance.

The effect of efficient production on firm quality, customer satisfaction and employee satisfaction was found to be significant (correlation coefficient = 0.651, 0.563, 0.535, $p < 0.01$). According to [4], adoption of environmental management practices has contributed to a more cost-efficient production process that ensure built in quality while at the same time maximize the use of resources, reduce waste and energy consumption. Based on the results, efficient production does have a positive relationship with nonfinancial performance of a company.

The effect of EMC of suppliers on organizational performance was found to be significant (correlation coefficient = 0.661, 0.561, 0.571, $p < 0.01$). Based on the data in Chapter 4, companies' suppliers are said to have strong EMC. Consequently, when EMC of suppliers is strong, it produces a better firm quality. Study carried out by [21] provided evidence about suppliers with high EMC can bring positive impact on financial performance of a company. While, the results of this research show that EMC of suppliers is the most influential factor that affect nonfinancial performance of a company.

From the data above, it is clear that EMC of suppliers has the highest coefficient for the effect on organizational performance. In another words, EMC of suppliers is the most significant factor that impact organizational performance. Based on the research, EMC of suppliers is obviously an essential factor to the application of ISO14001 in order to provide nonhazardous materials to the company and indirectly improve organizational performance. The second influential factor is efficient production in which green practices on the production process would improve organizational performance of a company.

In conclusion, this research attempts to identify the impacts of ISO14001 towards organizational performance with respect to orientation factors and EMC of suppliers. In this quantitative research study, data is collected by distributing survey questionnaires to targeted population. Data analysis was then being carried out. Reliability test was conducted to test on the data before analysing the postulated hypotheses. Next, the hypothesese were tested with bivariate approach and Shapiro-Wilk correlation coefficient by using SPSS software. The results showed that only 3 out of 9 of the hypothesese in orientation factors which is efficient production (H_{3a} , H_{3b} , H_{3c}) as well as EMC of suppliers (H_{4a} , H_{4b} , H_{4c}) were found to be significantly supported. Last but not least, this research could be improved by expand the population to have more sample in order to obtain a more dependable results. This research study is expected to assist SMEs in Johor area in order to better implement ISO14001 standard into their production and operation.

Acknowledgments. Researchers want to thank the students involved in the study, namely Ng Scow Chian and support provided by ORRIC, Universiti Tun Hussein Onn Malaysia when conducting research. This research was funded by FRGS vot 1226.

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