Advances in Engineering Research, volume 172

4th International Conference on Food and Agriculture Resources (FANRes 2018)

The Influence of Transfer Knowledge and Quality Management on Environmental Performance Through Innovation Strategy on Batik Mukti Manunggal Association

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***Abstract*—This study aims to determine the effect of transfer knowledge and quality management on the innovation strategy of Batik Mukti Manunggal Association, to determine the effect of transfer knowledge and quality management on the environmental performance of Batik Mukti Manunggal Association and to determine the effect of innovations strategy on the environmental performance of Batik Mukti Manunggal Association. The research method is using a quantitative approach, which isconsist of two, namely descriptive analysis and inferential analysis using path analysis. Data collection techniques in this study used a questionnaire. Research respondents were 169 workers who worked in the Batik Mukti Manunggal Association. The result concludes that the transfer knowledge and quality management has a positive and significant on the innovation strategy of Batik Mukti Manunggal Association, transfer knowledge has a positive and significant on environmental performanceof Batik Mukti Manunggal Association, quality management has no effect on environmental performanceof Batik Mukti Manunggal Association, and innovations strategy has a positive and significant impact on environmental performance of Batik Mukti Manunggal Association.**

***Keywords*—Enviromental performance, innovations strategy, transfer knowledge, quality management**

I. INTRODUCTION

Innovation can be a role of contact of company to improve environmental performance by using knowledge transfer.Xie [1] argues that knowledge is an important factor that can support innovation activities in a company, where innovation is an output of the overall capacity utilization activities carried out by management. In line with that was also conveyed by Donate [2], who stated that knowledge can encourage the creation and implementation of innovation in the company. According to Wehn and Montalvo [3], knowledge in general is very important for companies that are trying to innovate, especially the transfer knowledge between employees which will ultimately be able to support innovations strategy in the company. Based on these facts, the company must be able to change and manage knowledge more effectively in order to be able to face the competition. The company must be able to determine the method that will be used to find solutions to problems experienced by the company and remain maximum in facing market needs, this opinion is conveyed by Goh [4]; Tidd *et al* [5]. Employees in a company that has the willingness to share their knowledge will greatly affect the organization learning, especially in terms of finding new ideas to support innovation strategy for the company. Brachost *et al.* [6] suggested that employees who have personal motivation to spread their knowledge will indirectly increase the employee's confidence to provide the best abilities for the company. In line with that also conveyed by Smith *et al.* [7] argues that increasing innovation strategy indirectly will increase the potential of the company in the future to achieve success.

Environmental performance is not only created and influenced by innovation strategy, but also influenced by quality management, where quality management plays a role in increasing competitiveness and creating competitive advantage Manders [8]. In addition to innovation strategy, there are other aspects that influence innovation strategy, such as property individual and employee social capital cited from Afandi *et al*. [9]; Tusa'diah *et al.* [10]; Novianti *et al*. [11]; Setiawan & Tjahjono, [12]; Palupi & Tjahjono, [13]; Tjahjono, [14]. Quality management has the ability to create a work environment that is able to encourage business innovation strategy. According to Sadikoglu *et al.,* [15], shows that quality management has the ability to reduce the excess of resources which is actually support innovation strategy in the company. On the contrary, Hung *et al.,* [16] shows that only a few companies dare to start innovation strategy, the majority of companies prefer to become followers of innovations strategy that have been done by other companies. Ibarra *et al.,* [17] suggested that the level of knowledge held by the public about the development of industry 4.0 had an influence on the company's business

model in identifying business model innovations as well as the impact of the model on company performance.

Based on data posted on the official website of the Ministry of Cooperatives and Small and Medium Enterprises (Kemenkop UKM), the Ministry of Cooperatives and Small and Medium Enterprises has launched 3.79 million micro and small and medium enterprises (SMEs), of which all SMEs have used online platforms to market their products. This number is around 8% of the total SMEs players in Indonesia, which is total amount 59.2 million. There are several studies linking the influence of transfer knowledge with performance through innovations strategy Xie [1]; Hamdoun [18]; and Zheng [1]. Hung *et al.* [16] has interrelated research in which these studies show that quality management has a large role to increase innovation. Therefore, this study wants to know the effect of transfer knowledge and quality management on environmental performance through innovations strategy in the Batik Mukti Manunggal Association.

This research was conducted at the Batik Mukti Manunggal Association, which is placed in Slemanand formed by batik makers on January 27, 2015. The formation of the association is intended as a place for batik makers in Sleman to share knowledge about production and marketing management so that members can become batik makers with character and competitiveness.

Based on the research findings gap that has been made previously, research will be conducted to fill this gap by integrating the relationship between variables of transfer knowledge and quality management to improve environmental performance through innovationsstrategy. This study aims to analyze the effect of transfer knowledge and quality management on environmental performance through innovation strategies on Batik Mukti Manunggal Associations.

II. METHODS

This study uses primary and secondary data. Primary data was collected by researchers by directly giving questionnaires to the Batik Mukti Manunggal Associationin Yogyakarta. Secondary data was collected indirectly through the intermediary media to obtain the required supporting documents either directly issued by the Batik Mukti Manunggal Association. The population in this study were all member groups in the Batik Mukti Manunggal Association consist of Batik Dewi Kunti, Batik Srikandi Merapi, Batik Mekar Lestari, Batik Nologaten, Batik Sekar Jatimas, Batik Parang Gubito, Batik Goonen, Batik Sekar Dadi, Batik Mustika, Batik Arumsari, Modinan Batik, Batik Mavee, Batik Hurast, Batik Mantaran, Batik Pojok Srikandi, Batik Plalangan, Batik Art T'rav, Batik Sekar Giri, Batik Sekar Turi Omah, Batik Sekar Kawung, Batik Abarupa, Batik Merarikorejo, Batik Gempar, Batik Abirupa, Batik Merdikorejo, Batik Gigs, Batik Erv, Batik Sekarsari, Marenggo Natural Dvest Batik, Batik Parang Kaliurang, Batik Canting Merapi, and Batik Sekar Langit. The population is 169 workers who work in the batik sector with natural and synthetic dyes. Overall this study uses census data collection techniques. If it turns out that at the time of the study, there were respondents who could not be found for a long time, the respondents would be ignored so that if the amount of data obtained was less than 169 it was not due to deliberate but actual situation. The questionnaire used in this study was prepared for respondents by providing alternative answers chosen by the research subject (respondents). This study uses a model developed by Likert with 6-scale interval scale. Likert scale usually uses 5 scales but in order to avoid floating answers as intentional elements, the researcher turns them into 6 scales with categories of strongly disagree (1), disagree (2), somewhat disagree (3), somewhat agree (4), agree (5), and strongly agree (6). The test equipment used to test the instrument is the validity and reliability test. Validity test is said to be valid if the significance value is greater than 0.05, while the reliability test results if the Cronbach Alpha value is greater than 0.6.The statistical technique used in this study is to analyze using descriptive analysis and inferential analysis through path analysis.Path analysis is used to analyze the relationship between variables with the aim of knowing the direct or indirect effects of a set of independent variables on the dependent variable.

III. RESULT AND DISCUSSIONS

From the results of the validity and reliability test, the following results are obtained:

Table 1. Validity and Reliability Test

Variable	Indicator	*Pearson Correlation*	Significance	Information	Cronbach's Alpha
KNOWLEDGE TRANSFER	Item 1	0.629	0.000	Valid	0.889
	Item 2	0.852	0.000	Valid	
	Item 3	0.829	0.000	Valid	
	Item 4	0.822	0.000	Valid	
	Item 5	0.779	0.000	Valid	
	Item 6	0.725	0.000	Valid	
	Item 7	0.829	0.000	Valid	
	Item 8	0.852	0.000	Valid	
QUALITY MANAGEMENT	Item 1	0.881	0.000	Valid	0.947
	Item 2	0.899	0.000	Valid	
	Item 3	0.865	0.000	Valid	
	Item 4	0.827	0.000	Valid	
	Item 5	0.804	0.000	Valid	
	Item 6	0.777	0.000	Valid	
	Item 7	0.881	0.000	Valid	
	Item 8	0.899	0.000	Valid	
INNOVATION	Item 1	0.817	0.000	Valid	0.885
	Item 2	0.879	0.000	Valid	
	Item 3	0.718	0.000	Valid	
	Item 4	0.871	0.000	Valid	
	Item 5	0.861	0.000	Valid	
ENVIRONMENTAL PERFORMANCE	Item 1	0.948	0.000	Valid	0.968
	Item 2	0.940	0.000	Valid	
	Item 3	0.833	0.000	Valid	
	Item 4	0.874	0.000	Valid	
	Item 5	0.869	0.000	Valid	
	Item 6	0.892	0.000	Valid	
	Item 7	0.948	0.000	Valid	
	Item 8	0.940	0.000	Valid	

*Significance at 5% level

Based on the table 1, the calculated values of all questionnaire items including the research variables namelytransfer knowledge, quality management, innovations strategy, and environmental performance show the probability value (sig) <0.05. So, the questionnaire of the research variables are all valid, and the Cronbach Alpha value obtained from all results including research variables that show greater than the value of 0.6. and it means reliable.

Table 2. Descriptive Analysist

NO	VARIABLE	MEAN	INFORMATION
1	Transfer Knowledge	3.43	Somewhat disagree
2	Quality Management	3.19	Somewhat disagree
3	Innovations Strategy	3.22	Somewhat disagree
4	Environmental Performance	3.43	Somewhat disagree

Based on statistical descriptive tables showing that variables transfer knowledge, quality management, innovations strategy, and environmental performance have a score in the range of 2,667 - 3,500. This shows the low level of variables transfer knowledge, quality management, innovations strategy, and environmental performance which is experienced by Batik Mukti Manunggal Association.

The hypothesis testing in this study uses multiple linear regression models. Multiple linear regression analysis is used to obtain a comprehensive picture of the effects of transfer knowledge and quality management on environmental performance through innovations strategy. The results of multiple linear regression calculations are presented in Table 3 below:

Table 3. Multiple Linear Regression Model I (Innovation)

Variabel	Koef. Reg	t	Sig
(*Constant*)		5.585	
Transfer Knowledge	0.411	6.084	0.000
Quality Management	0.280	4.142	0.000
F		39.277	
Sig		0.000	
Adj R Square		0.313	

*Significance at 5% level

Table 4. Multiple Linear Regression Model II (Environmental Performance)

Variabel	Koef. Reg	t	Sig
(*Constant*)		4.128	
Transfer Knowledge	0.277	4.170	0.000
Quality Management	-0.051	-0.809	0.420
Innovation	0.523	7.579	0.000
F		48.156	
Sig		0.000	
Adj R Square		0.457	

*Significance at 5% level

The first step that must be done in using path analysis is to find the relationship between the variables that exist in this case called the path diagram. Where there are independent variables consisting of Transfer knowledge (X_1), Quality management (X_2), Innovations Strategy (Y_1) as intervening variables, while Environmental performance (Y_2) as the dependent variable. Based on the influence model described above, the overall direct and indirect of influence can be arranged as follows:

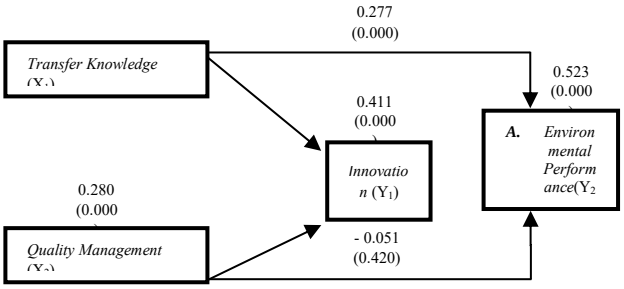

Figure 1. Path analysis results between X_1, X_2, Y_1 and Y_2

Based on Figure 1, it can explain the direct and indirect effects of Transfer Knowledge (X_1), Quality Management (X_2) through Innovations Strategy (Y_1) for Environmental Performance (Y_2)

A. Effect of transfer knowledge on environmental performance through innovations strategy

1) Direct effect of Transfer knowledge (X_1) on Environmental Performance (Y_2) is 0.277 or 27.7 percent
2) Indirect effect of Transfer Knowledge (X_1) on Environmental Performance (Y_2) through Innovations strategy (Y_1) is 0.411 X 0.523 = 0.214 or equal to 21.4 percent
3) Total influence of Transfer Knowledge (X_1) on Environmental Performance (Y_2) through Innovations Strategy (Y_1) is 0.277 + 0.214 = 0.491 or 49.1 percent.

B. Effect of Quality Management on Environmental Performance through Innovation

1) Direct effect of Quality Management (X_2) on Environmental Performance (Y_2) is -0,051 or - 5.1 percent
2) The indirect effect of Quality Management (X_2) on Environmental Performance (Y_2) through Innovations Strategy (Y_1) is 0.280 X 0.523 = 0.146 or 14.6 percent
3) The total effect of Quality Management (X_2) on Environmental Performance (Y_2) through Innovations Strategy (Y_1) is - 0.051 + 0.146 = 0.095 or 9.5 percent.

The results showed that transfer knowledge and quality management had a positive and significant on the innovations strategy, transfer knowledge has a positive and significant on environmental performance, quality management has no effect on environmental performance, and innovation strategy has a positive and significant on environmental performance.

Our research is in line with research conducted by Xie [1], argues that knowledge is an important factor that can support innovation activities in a company, where innovation is an output of the overall capacity utilization activities carried out by management. According to Wehn and Montalvo [3], knowledge in general is very important for companies that are trying to innovate, especially the transfer of knowledge between employees which will ultimately be able to support innovation in the company. Several previous studies have also shown the positive impact of quality management on innovation.

Companies that have implemented quality management in their systems and cultures indicate that the company has prepared an optimal environment for innovation, this is conveyed by Pekovic and Galia [19]. In particular, the quality management process aims to eliminate all waste and inefficiency, and thus can damage innovation [15].

Claver *et al*. [20] suggested that the application of environmental management by companies could cause companies to find new knowledge in the field of environment and human resources, so that at the operational level directly improve the company's environmental performance.

Quality management has no significanton environmental performance, this statement is supported by the results of Zeng's research. Zeng [1] argues that the philosophy and principles of quality management are considered incompatible with innovation. The relationship between knowledge management and innovation shows a complementary relationship between two fields of management and provides long-term competitive advantage in order to improve environmental performance. Some researchers note a strong relationship between quality management and knowledge transfer. Quality and innovation management promotes employee empowerment, engagement and teamwork, which are strongly related to the knowledge transfer by employees and affect environmental performance

IV. CONCLUSIONS

The results shows that 1) transfer knowledge had a positive and significant on innovation strategy in Batik Mukti Manunggal Association 2) Quality management had a positive and significant on the innovations strategy in the Batik Mukt iManunggal Association 3) Transfer knowledge had a positive and significant on environmental performance in the Batik Mukti Manunggal Association 4) Quality management has no significant on environmental performance in the Batik Mukti Manunggal Association 5) Innovations strategy has a positive and significant on environmental performance in the Batik Mukti Manunggal Association.

ACKNOWLEDGEMENT

The success of this research requires a lot of guidance and assistance from many parties and we are very fortunate to be able to get help in completing our assignments. We are very grateful to all parties that we cannot mention one by one who have helped us in completing this research. We are truly grateful that we successfully completed this task correctly. This task cannot be completed without the efforts and cooperation of our team members. Last but not least, we would like to thank our friends and respondents for their support and willingness to spend time with us.

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