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Networking and Innovation Performance of Micro-Enterprises in Malaysia: The Moderating Effects of Geographical Location

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ABSTRACT

Using a quantitative approach, this study on micro-enterprises employing confirmation factor analysis (CFA) and structural equation modelling (SEM) AMOS version 21.0 tested the moderating effect of geographical location on the relationship between external networking and innovation performance. The study adds to the theoretical and practical knowledge on improving firm performance, specifically micro-enterprises. In addition, the findings will help the SMEs' Masterplan towards achieving a high nation income by 2020 in line with The New Economic Model.

Keywords: Innovation, micro-enterprises, networking, performance

INTRODUCTION

Small and medium enterprises (SMEs) in Malaysia is expected to contribute up to 42 percent of the country's GDP by the year 2020 (The Borneo Post, 2015). In 2014 it contributed 35.9 percent to the economic growth, which was above the standard benchmark for a developing nation (The Borneo Post, 2015).

SMEs in Malaysia can be categorized into micro, small, medium and large enterprises based on the amount of annual sales turnover and number of full-time employees (SME Corp. Malaysia, 2013). According to SMEs Department of Statistic Census 2011 micro-enterprises comprised 75 percent of the total SMEs, while small, medium and large sized accounted for 20%3% and 2% respectfully. Nevertheless, micro-enterprises suffer from various

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challenges ranging from finance to human resource deficiency (Mohamed Asmy & Mohammed, 2015; Samad et al., 2016) in order to survive and compete in the market. Thus, it is important to identify and understand the success factors and key determinants of their performance. Several researchers (Abou-Moghli, Abdallah, & Muala, 2012; Al-Ansari, Pervan, & Xu, 2013; Aziz & Samad, 2016a; Büyükbalcı, 2012; Samad et al., 2016) suggested that micro-enterprises must improve by innovation for sustainable competitive advantage.

Hence, applying the Resource-Based View (RBV) theory, this study investigated how networking influences innovation performance in micro-enterprises in Malaysia. The study presents a framework that synthesizes the cooperation of micro-enterprises with external networking and investigates how networking which consists of customers, competitors, and government agencies affect the innovation and performance. The study also examines how geographical location may moderate the relationship between networks, innovation, and performance of micro-enterprises.

LITERATURE REVIEW

External Networking and Innovation Performance

A firm's ability to survive in the marketplace depends on its internal resources that are difficult to be imitated and substituted by others (Barney, 1991). A firm's ability to innovate has become crucial in todays globalized commercial interaction. Some researchers suggest that micro-enterprises need to expand their resources, knowledge and contacts through collaboration with external networks to enhance their innovation capabilities (Hardwick, Cruickshank, & Anderson, 2012). In Malaysia, substantial research has been conducted on the impact of external networking towards the SMEs competitive advantage (Abdullah et al., 2009; Hassan, Yaacob, & Abdullatiff, 2014; Ismail, Domil, & Isa, 2014; Turyakira & Mbidde, 2015). However, little is known about the impact of external networking on innovation performance specifically in Malaysian micro-enterprises.

Researchers previously emphasized that there is a need for micro-enterprises to engage with the various actors since this activity may bring more impact on firms' innovative performance (Baker, Amir, & Harmancioglu, 2016; Egbetokun, 2015; Molina-Morales, Garcia-Villaverde, & Parra-Requena, 2014; Simonen & McCann, 2008). External networking may enhance interaction between different actors like customers, competitors, suppliers and government agencies. A study done by Zeng, Xie and Tam (2010) found that the innovation performance of manufacturing SMEs in Shanghai, China have been significantly affected by inter-firm cooperation, cooperation with intermediary institutions and research organizations. They further stated that cooperation with suppliers and customers played an important role

in the innovation process. While, Tu and Hwang (2014) reported that the increased in the generation of product and service innovations was found when the cooperation of micro-enterprises with the suppliers exist. In addition, a good relationship between micro-enterprises and customers may create customers' loyalty, ensure continuous demand and feedback from customers related to the quality of their products (Hassan, Yaacob, & Abdullatiff, 2014). Moreover, various government agencies may also help in developing sustainable micro-enterprises. These agencies provide a wide range of services for different target groups (Hassan et al., 2014). Although, some of the researchers, for example (Zeng et al., 2010) found that the linkage and cooperation with government agencies do not demonstrate any significant impact on the innovation performance of SMEs. The first hypothesis of this paper is:

H1: There is significant influence between networking and innovation performance

Geographical Location

Geographical factors could contribute to innovation performance in micro-enterprises and as shown by Doran, O'Leary, & Jordan, 2009; Jong & Freel, 2010; Molina-Morales, Garcia-Villaverde, & Parra-Requena, 2014. In particular, nearness contributes to higher rates innovation collaboration (Jong & Freel, 2010). Proximity also encourages intense interactions among the different actors in the industry and allowing knowledge to be spread through e face to face relations and inter-organizational interactions (Molina-Morales et al., 2014).

According to Savic, Smith, and Bournakis (2014), both regional and international networks are conducive for firm's innovativeness. Consequently, geographic distance is seen as an accelerator of entrepreneurship and innovation (Aziz & Samad, 2016b; Ben Letaifa & Rabeau, 2013). On the other hand, Simonen and McCann (2008) reported that face to face knowledge exchanges between firms is insignificant with respect to innovation suggesting closeness also would reduce the potential for newness and innovation (Boschma, 2005). Since there are mixed findings on the effect of geographical location on external networking and innovation performance, the second hypothesis of this study is:

H2: Geographical location moderates the relationship between networking and innovation performance.

METHODS

Research Framework

The conceptual framework shown in Figure 1 seeks to investigate the influence of external networking on the innovation performance and show the moderating effect of geographical location on the path relationship between the external networking and the innovation performance.

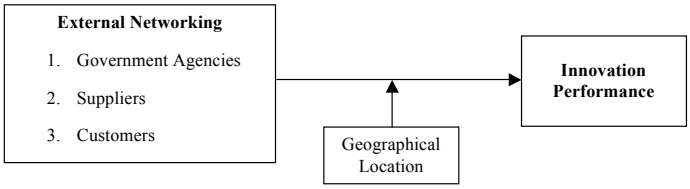

Figure 1. Conceptual framework

Research Design and Data collection

Data were collected through a cross-sectional survey using a set of the questionnaire on a sample of micro-enterprises in Malaysia. The sample frame for micro-enterprises was obtained from the official website of the Ministry of Agriculture i.e. www.eiat.moa.gov.my. A pilot study was initially carried out with a hundred owners of micro-enterprises. Minor changes were done in the final research after the pilot test was completed. In total, 400 questionnaires were distributed to randomly selected micro-enterprises in Malaysia. From the 400 questionnaires, 330 usable questionnaires were received, yielding a response rate of 82.5%. The primary data obtained from questionnaires were analyzed through AMOS graphic version 22.0.

The questionnaire consists of two sections. The first section related to questions on the demographic characteristics of the enterprises. The second section includes 24 items using a five-point Likert-Scale that ranging from 1 (strongly disagree) to 5 (strongly agree). 12 items are related to external networking and another 12 items are on the innovation performance. The result of Cronbach's Alpha values ranging from 0.852 to 0.906 which fulfils the minimum requirement level of reliability. The Cronbach Alpha values indicate that the scales used in this survey are reliable.

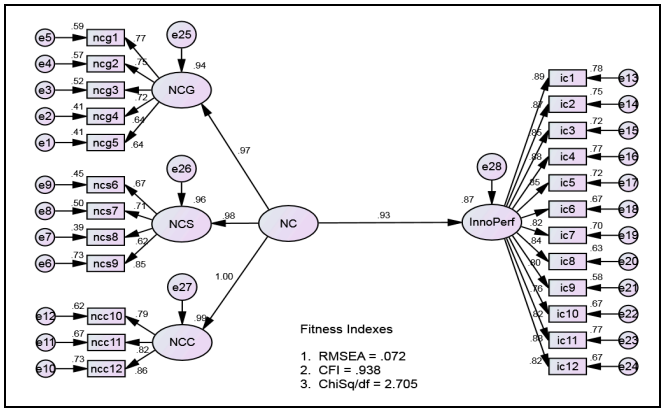

Figure 2. The standardized path coefficients between constructs in the Second Order Model

RESULTS

Path Analysis of the Model and Results: Structural Equation Modelling (SEM)

After the issues of uni-dimensionality, validity and reliability of the latent constructs were addressed the constructs were modeled into a structural model for analysis using SEM. The basic model in Figure 1 was proposed as the first research objective i.e. to determine the influence of innovation on competitive advantage.

Figure 2 indicates the standardized path coefficients estimated by the structural equation modelling procedure. The Coefficient of Determination (R2) is 0.87 (Figure 2), which indicates that 87% of the innovation performance can be estimated by the exogenous construct namely networking. The next step is to perform regression analysis, and the results are shown in Table 1.

Table 1
The regression path coefficients and its significance

			Estimate	S.E.	C.R.	P	Result
InnoPerf	<---	NC	1.742	.141	12.389	***	Significant

Note: *** $p < 0.001$, N = 330, InnoPerf = Innovation Performance, NCG = Networking Capability

When NC goes up by 1, InnoPerf goes up by 1.742. The regression weight estimate, 1.742, has a standard error of about .141. Dividing the regression weight estimate by the estimate of its standard error gives z = 1.742/.141 = 12.389. In other words, the regression weight estimate is 12.389 standard errors above zero. The probability of getting a critical ratio as large as 12.389 in absolute value is less than 0.001. In other words, the regression weight for NC in the prediction of InnoPerf is significantly different from zero at the 0.001 level (two-tailed).

Table 2
The summary of hypotheses testing and result

	Research Hypothesis	Estimates	Results
H1:	There is a positive effect of networking on innovations performance	1.742***	Supported

The result in Table 2 shows that there is a significant influence of networking on innovation. This indicates that the core influence of innovation on competitive advantage is significantly positive (β = 1.742, $p < .001$) with R2 value is 0.87 (Figure 2). The finding supports hypothesis one that there is an effect of networking on innovation performance.

Testing of Moderation Effect

The data was split into two groups and renamed as "City Council Group" and "District Council Group" to test the moderating effects of geographical location on networking. The "City Council Group" is defined as micro-enterprises located at the city that administrated by the local government. Whereas, the "District Council Group" is defined as micro-enterprises located in the rural areas that administrated by the district council. Table 2(a), 2(b) and 2(c) show the moderating test for city council group, while Table 3(a), 3(b) and 3(c) show the moderating test for district council group.

Table 2(a)
The chi-square value and DF for constrained model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	47	447.082	253	.000	1.767
Saturated model	300	.000	0		
Independence model	24	543.880	276	.000	1.971

Table 2(b)
The chi-square value and DF for unconstrained model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	48	446.784	252	.000	1.773
Saturated model	300	.000	0		
Independence model	24	543.880	276	.000	1.971

Table 2(c)
The moderating test for City Council Group data on networking

	Constrained Model	Unconstrained Model	Chi-Square Difference	Result of Moderation	Result on Hypothesis
Chi-Square	447.028	446.784	0.244	Not Significant	Not Supported
DF	253	252	1		

The difference in Chi-Square value is 0.244 (447.028 – 446.784). Meanwhile, the difference in Degree of Freedom is 253 - 252 = 1. For the test to be significant, the difference in Chi-Square value must be higher than the value of Chi-Square with 1 degree of Freedom that is 3.84.

Table 3(a)
The chi-square value and DF for constrained model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	46	1006.149	254	.000	3.961
Saturated model	300	.000	0		
Independence model	24	1146.289	276	.000	4.153

Table 3(b)
The chi-square value and DF for unconstrained model

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	48	968.311	252	.000	3.843
Saturated model	300	.000	0		
Independence model	24	1146.289	276	.000	4.153

Table 3(c)
The moderating test for District Council Group data on networking

	Constrained Model	Unconstrained Model	Chi-Square Difference	Result of Moderation	Result on Hypothesis
Chi-Square	1006.149	968.311	37.838	Significant	Supported
DF	254	252	2		

The difference in Chi-Square value is 37.838 (1006.149 – 968.311). Meanwhile, the difference in Degree of Freedom is 254 – 252 = 2. For the test to be significant, the difference in Chi-Square value must be higher than the value of Chi-Square with 2 degree of Freedom that is 5.99. Since the moderating test result for the "City Council Group" is not significant, but the moderating test result for the "District Council Group" is significant, then full moderation occurs.

Since the moderation effect was initially established via non-parametric testing, the study to determine the relationship between networking and innovation performance is more pronounced using a parametric testing. Table 4(a) and 4(b) show the standardized beta estimates for the "City Council Group" and the "District Council Group" in the path networking to innovation performance.

Table 4(a)
The effect of networking on innovation performance is not significant for City Council Group

			Estimate	S.E.	C.R.	P	Results
InnoPerf	<---	NC	2.084	2.063	1.010	.312	Not Significant

Table 4(b)
The effect of networking on innovation performance is significant for District Council Group

			Estimate	S.E.	C.R.	P	Result
InnoPerf	<---	NC	.415	.133	3.124	.002	Significant

Table 4(a) and Table 4(b) show that the standardized parameter estimates networking for the "City Council Group" is 2.084 (p=.312) and the same estimate for the "District Council Group" is 0.415 (p = .002). The results conclude that the effect of networking with external parties on innovation performance is more pronounced in the "District Council Group" compared to the "City Council Group".

DISCUSSION

This paper analyses the influence of external networking of government agencies, suppliers and customers on innovation performance in micro-enterprises in Malaysia and examines how geographical factor may influence it to enhance opportunities. Results shown in Table 1, the estimated value was found to be positive which show the influence of networking on the innovation performance ($\beta = 1.742$, $p < .001$ with $R2 = 0.87$ (Figure 2)). The result supports that there are effects of external networking on the innovation performance by contributing 87 percent to the increased in the innovation performance. In addition, it also strong external networking can improve opportunities for innovation. The research supports the results (Saguy & Sirotinskaya, 2014; van de Vrande et al., 2009; Yeoh, 2014) that networking with external parties has a positive impact on firm innovation. The study also shows that geographical location has a moderating effect on the relationship between external networking and innovation performance. The influence of networking on innovation performance is stronger when the micro-enterprises located in the urban areas and close with all of the amenities, supports, organizations and opportunities. The study supports previous findings (Jong & Freel, 2010; Molina-Morales et al., 2014) on distance and innovation performance. Therefore, in order for micro-enterprises to benefit from networking on innovation performance, they need to establish long-term mutually beneficial relationships with external parties in order to boost innovation opportunities. For instance, the government, suppliers and customers are the examples of external networking that may help micro-enterprises in Malaysia to upgrade the available products and to develop new products in order to strengthen their innovation performance.

CONCLUSION

Collaborating with external parties is considered to be an important way micro-enterprises can enhance their opportunities to achieve innovation performance. This study found the moderating effect of geographical location on external networking

and innovation performance. Therefore, indicating micro-enterprises need to engage and build the continuous relationships to increase innovation performance and maintain market sustainability.

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