

# Knowledge Management Practices and Generic Competitive Strategy in Knowledge-Based SMEs

Rohana Ngah

*Universiti Teknologi MARA, Malaysia, {rohanangah@uitm.edu.my}*

## ABSTRACT

Knowledge is one of the most important resources for any companies to gain a competitive advantage through generic competitive strategy. This paper aims to investigate the knowledge management practices in knowledge-based SMEs in Malaysia and the impact on generic strategy of competitive advantage. Due to its smaller size, SMEs are said to be the best model to practice knowledge management that can help in innovation. A total of 140 questionnaires were collected from SMEs and structural equation modeling was used to analyze the data. Knowledge management practices showed a strong relationship to competitive advantage which inclined more towards differentiation. However, knowledge storage and knowledge creation didn't contribute to the competitive advantage. The findings provide an important contribution in the formulation of a model of knowledge management practices and competitive advantage among SMEs. Further discussion and implication were discussed.

**Keywords:** Knowledge management practices, generic strategy, competitive advantage, cost leadership, differentiation, SMEs, Malaysia.

## I INTRODUCTION

Knowledge management practices have been actively explored in SMEs to helping them in improving their performance. Knowledge has become the most important strategic factor to achieve a competitive advantage (Durst & Edvardsson, 2012). Previous studies had shown that knowledge management practices had helped SMEs in acquiring, organizing and exploiting the organizational knowledge to create their competitive advantage (Wong & Aspinwall, 2005). Studies had shown that SMEs have all the advantages to implement knowledge management because of its size, flexibility, less formal and lower turnover rates (Durst & Edvardsson, 2012). Because of that, the flow of knowledge in SMEs is expected to accelerate throughout the organization where knowledge has been fully in assisting SMEs to create as well as sustain its competitive advantage. However, studies revealed that the practice of knowledge management in SMEs is still limited and

certain elements like knowledge storage and application are not well explored. Moving forward towards Industrial Revolution 4.0, SMEs would have to prepare a strategy in order to strategically position itself in brazing the digitalization era. Organizational knowledge must be utilized and exploited together with technology for creativity and innovation. Thus, SMEs would need to capitalize their organizational knowledge to create their competitive advantage.

This paper aims to investigate the impact of knowledge management practices towards generic strategy of competitive advantage of knowledge-based SMEs in Malaysia. The paper is organized as follows. In section two, literature review related to the research objective is briefly discussed. Section three then describes the method employed and results are presented and in the final section, the conclusion and implications of the study are laid out.

## II LITERATURE REVIEW

### A. Knowledge Management Practices

Knowledge management is a systematic and integrated management strategy that develops, transfers, transmits, stores, and implements knowledge so that it can improve efficiency and effectiveness of the organization's manpower (Ghulami et al. 2013). Knowledge Management practices refers to the process of acquiring, storing, understanding, sharing, implementing knowledge, and these actions are taken in the organizational learning process with regard to the culture and strategies of the organizations (Kiesling et al. 2009).

There are many discussions on dimensions of knowledge management practices. For example, Nissen et al. (2000) divided a knowledge flow into six phases which are creation, organization, formalization, distribution, application or implementation, and evolution. While, Wiig et al. (1997) listed eight practices: reviewing, analyzing the KM processes, analyzing the application risks, executing the proposed plans, developing knowledge, consolidating knowledge, sharing knowledge, and combining knowledge. In this research, six main practices are adapted from the models of Lee and Choi (2002) and Nonaka and

Takeguchi (1998). These practices comprise of knowledge application, creation, acquisition, dissemination, storage, and protection which have been frequently applied in evaluation of KM practices. Knowledge acquisition refers to the process of acquiring and learning appropriate knowledge from various internal and external resources, such as experiences, experts, relevant documents, plans and so forth. Knowledge creation involves the utilization of internal and external resources of an organization to generate new knowledge for achieving the organizational goals. Knowledge application is the process when available knowledge is used to make decisions and perform tasks through direction and routines. Knowledge dissemination or sharing is a process through which personal and organizational knowledge is exchanged (Asrar-ulhaq et al, 2016). Knowledge storage involves both the soft or hard style recording and retention of both individual and organizational knowledge in a way so as to be easily retrieved (Gholami et al. 2013). Knowledge protection is a practice to protect the knowledge within an organizational from illegal or inappropriate use or theft (Gold et al. 2001)

#### **B. Generic Competitive Strategy**

Michael Porter (1985) introduced the generic competitive advantage which can help firms to achieve competitive advantage. Competitive advantage is the capability of the organization to carry out its activity in a certain or different ways, that other competitors not aware of (Kotler, 2000). There are two types of competitive advantage strategies which are cost leadership and differentiation (Porter, 1985). These two strategies seek competitive advantage in a broad range of segments (Gibcus & Kemp, 2003). The measurement is deemed suitable for SMEs especially relating to technological innovation which combined both product and process innovation. This is recommended by Rao and Holt (2005) to measure SMEs' competitiveness in terms of the specific benefits achieved after the implementation of better KM practices.

##### *Cost Leadership.*

When using cost leadership strategy, SMEs would focus on cost minimization (Kaya, 2015). In a cost leadership strategy, a firm sets out to become the low-cost producer in its overall operation. The sources of cost advantage are varied and depend on the structure of the industry (Gibcus & Kemp, 2003). In a cost leadership strategy, a low-cost producer must find and exploit all sources of cost advantage. Only when a firm can achieve and sustain overall cost leadership, then it will be an

above-average performer provided it could control prices at or near the average. The focus on costs concerns all business activities on a permanent basis

##### *Differentiation*

In differentiation strategy, firms give importance to access the superior quality and image through value chain (Varadarajan, 1998). Using this strategy, a firm seeks to be unique along some dimensions that are highly valued by buyers. It selects one or more attributes that many buyers in an industry perceive as important and uniquely positions itself to meet those needs. It is rewarded for its uniqueness with a premium price. The differentiation can be based on the product itself, the delivery system by which it is sold, the marketing approach and a broad range of other factors. A firm that can achieve and sustain differentiation will be an above-average performer in its industry if its price premium exceeds the extra costs incurred in being unique (Gibcus & Kemp, 2003).

### **III METHODOLOGY**

This study focused on knowledge-based SMEs in central Malaysia. The respondents were owners, senior managers, and managers of SMEs that are well-versed with the operation of the companies. This study adopts non-probability sampling method where each respondent was required to acknowledge that his company is involved in R&D and innovation before completing the questionnaire. This is to select respondents that meet the objective of the study. A total of 140 responses were received from 300 questionnaires distributed, indicated 45 percent response rate. However, 5 were rejected due to errors in completing sections of the questionnaire. Data were collected from a seven-point Likert scale response format. Survey items were developed from a review of the literatures and pilot tested with 10 SMEs' owners. Not many changes were made to the final version of the questionnaires. Knowledge management practices measurement was adapted from Lee & Choi (2003), Gold et al (2001) and Nonaka & Takeuchi (1995). The generic competitive strategy is measured using two elements which are cost leadership and differentiation. The measurement was adopted from Zabid (2000) and Bamberger (1989). Items statements in the variables sections are measured as subjective estimates using a five-point Likert scale (with 1 = strongly disagree and 5 = strongly agree).

##### *Respondents Profile*

The demographic profile of respondents is presented in Table I.

**Table 1. The measurement results.**

Profile		Freq	%
Type of Industry	Manufacturing	57	41.9
	Services	79	58.1
Length of Business	Less than 2 years	13	9.6
	2 – 4 years	39	28.7
	5-7 years	31	22.8
	8 – 10 years	14	10.3
	More than 10 years	39	28.7
R&D	Own R&D	74	54.4
	Staff exclusive for R&D	24	17.6
	Subcontracted out R&D projects	9	6.6
	Collaborated in R&D with others	3	2.2
	Received government incentives for R&D	10	7.3
	Missing value	16	11.8
Sources of Knowledge	In-house R&D /networking	65	47.8
	Strategic partner(s)	35	25.8
	Scientific Journals	7	5.1
	Research Programs	12	8.8
	Internal Experts	9	6.6
	Consultants	4	2.9
Annual allocation of R&D	Others	4	3
	<50 k	73	57.9
	51 – 100k	25	18.4
	101 – 300 k	13	9.6
Annual Sales Turnover	> 300k	15	11.0
	< 300k	34	32.1
	300k – 5 mil	74	54.4
	5 mil – 15 mil	18	13.2
	> 20 mill	13	9.3

There was almost equal representation from manufacturing and service sectors of 41.5% and 58.5% respectively. Majority of these sectors has between 5-75 workers and majority of SME recorded annual sales turn-over in between RM300, 000 to RM15 million. About 28% of SMEs has been operating for more than 10 years and the majority has been in business for 5-7 years. 54% of respondents had their own R&D facilities and about 47.8% generate sources of knowledge from internal and networking.

Structural equation modeling (SEM) was adopted for data analysis. The validation of the structural model was achieved using SmartPLS 2.0.M3. The research model is analyzed and interpreted into two stages sequentially. First is the assessment and refinement of adequacy of the measurement model and followed by the assessment and evaluation of the structural model. Partial Least Square (PLS) is a second-generation multivariate technique (Hair et al. 2012) which can simultaneously evaluate the measurement model and the structural model with

the minimal error variance (Hair et al. 2013). Common method variance (CMV) needs to be examined as the data was collected via self-reported questionnaires and both the predictor and criterion variables are obtained from the same person (Podsakoff et al., 2003, Kock, 2015). According to Podsakoff and Todor (1985), in self-reported measures from the sample samples will raise an issue of same-source bias or general method variance. Thus, there are few remedies to address this issue and Harman’s single factor test was used in this study. The Harman single-factor test requires loading all the measures in a study into an exploratory factor analysis, with the assumption that the presence of CMV is indicated by the emergence of either a single factor or a general factor accounting for the majority of covariance among measures (Eichhorn, 2014; Podsakoff et al. 2003, p. 889). In this test, all the principal constructs were entered into a principal component factor analysis (Podsakoff & Organ, 1986). Evidence method bias exists when a single factor emerges from the factor analysis, or one general factor accounts for the majority of the covariance among the measures (Podsakoff et al., 2003). In this study, the results showed a eight-factor solution with a total variance explained of 70.73 % and the first factor explained 53.13 % which confirms that common method bias is not a serious problem in this research.

## A. Results

### *Assessment of the measurement model*

Convergent validity is the degree to which multiple items to measure the same concept are in agreement (Hair et al., 2017). As suggested by Hair et al., (2010, 2013, this study used the factor loadings, composite reliability (CR) and the average extracted (AVE) to access convergent validity. The recommended values for loadings are set at > 0.5, the AVE should be > 0.5 and the CR should be > 0.7. Figure 1 presents the framework for this study where knowledge management practices was presented as a first-order construct and competitive advantage as a second-order construct. Table 3 shows the results of the measurement model exceeded the recommended values indicating sufficient convergence validity (Figure 2).

To analyze relationships between variables, discriminant validity assessment is a prerequisite (Henseler, Ringle & Sarstedt, 2015). Discriminant validity refers to the dissimilarity between the measurement tool’s ability to measure different constructs (Podsakoff et al. 2003; Podsakoff et al. 2012; Hair et al., 2017). Discriminant validity can be examined by comparing the squared correlations between constructs and the average variance

extracted for a construct (Fornell & Larcker, 1981). Shared variance between the latent constructs' indicators must be larger than the variance shared with other latent variables (Gotz et al, 2010). The latent variable's AVE should be larger than the common variance (squared correlations) relative to any other of the model's constructs in order to support discriminant validity.

**Table 3. The measurement results.**

Variable	Construct	$\alpha$	CR	AVE
KMP	KA	0.708	0.925	0.71
	KAP	0.751	0.924	0.752
	KC	0.772	0.931	0.772
	KD	0.719	0.905	0.76
	KS	0.768	0.945	0.812
	KP	0.768	0.943	0.768
CL		0.851	0.892	0.734
DF		0.872	0.922	0.797
CA				

Notes: CR- composite reliability;  $\alpha$  – Cronbach's alpha; AVE- average variance extracted; KA – Knowledge Acquisition, KAP – Knowledge Accumulation, KC- Knowledge Creation, KD- Knowledge Dissemination, KS – Knowledge Storage, KP- Knowledge Protection; CL – cost leadership; DF – Differentiation; SCA – Sustainable Competitive Advantage. KD4 was deleted due to low loadings.

**Table 4. Result of Discriminant Analysis.**

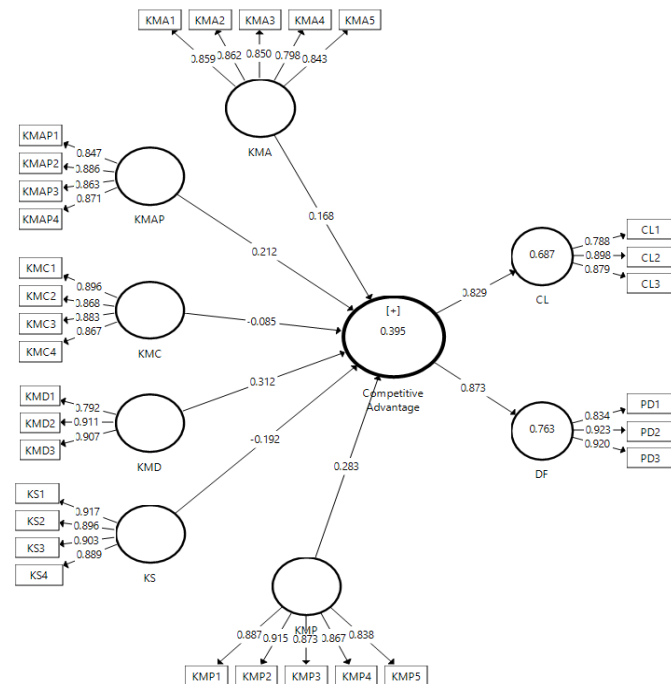
	1	2	3	4	5	6	7	8	9
CL	<i>0.86</i>								
KMA	0.46	<i>0.84</i>							
KMA P	0.40	0.79	<i>0.87</i>						
KMC	0.41	0.84	0.86	<i>0.88</i>					
KMD	0.46	0.71	0.73	0.77	<i>0.87</i>				
KMP	0.42	0.76	0.70	0.79	0.71	<i>0.87</i>			
KS	0.44	0.76	0.82	0.81	0.79	0.84	<i>0.90</i>		
DF	0.45	0.48	0.51	0.51	0.50	0.52	0.46	<i>0.89</i>	
CA	0.83	0.56	0.54	0.55	0.57	0.55	0.53	0.87	<i>0.74</i>

Table 4 shows that the square root of the AVEs (italicized in the diagonals) are in all cases greater than the off-diagonal row and column elements thus supports the discriminant validity of the scales used.

*Assessment of the Structural Model*

Figure 1 represents the structural model results with the coefficients for each path that indicates the causal relations among the constructs in the model (Sang, Lee & Lee, 2010). The tests on the significance of the path and hypothesis in the path model were performed using the SmartPLS's bootstrap re-sampling technique. All knowledge management practices dimensions had significant relationships to competitive advantage except knowledge storage (-0.192;  $\beta= 1.097$ ) and

knowledge creation (0.085,  $\beta= 0.670$ ). The knowledge management practices explained 39.5% variance in competitive advantage strategy especially differentiation strategy ( $R= 0.763$ ).



**Figure 1. A Structural Model**

**B. Discussion**

The objective of this study was to examine the effect of knowledge management practices on competitive strategies. The finding showed that overall knowledge management practices contributed to 39.5% of variance explained in competitive advantage. This is similar to findings by Jyoti et al. (2015) and Gholami et al. (2013). The effect of knowledge management practices had stronger effect on differentiation strategy showed that knowledge-based SMEs are emphasizing the importance of innovation in setting their competitive advantage strategy which demonstrated the compliance of entrepreneurial competitive advantage similar to findings by Kaya (2015). However, knowledge creation and knowledge storage failed to contribute to the competitive advantage. This result supported by Nunes et al (2006) stated that SMEs stated that knowledge creation, acquisition and storage are difficult for them to manage even though they knew that if knowledge could be better managed and stored it could help them to gain a competitive advantage such as greater innovation and profitability. Perhaps SMEs regarded knowledge accumulation and knowledge creation as the same things because of the process under knowledge creation also relate to accumulation (Sołek-Borowska, 2017).

#### IV CONCLUSION AND IMPLICATIONS

The study has attempted to reveal the relation between knowledge management practices and generic strategy of competitive advantage in knowledge-based SMEs. Knowledge management practices are important for SMEs to decide on their competitive advantage strategy. Knowledge management practices have been actively used in SMEs in achieving their competitive advantage through cost-leadership and differentiation strategies. The study had shown that for knowledge-based SMEs in Malaysia, differentiation is more prominent as it would help them to create higher quality and innovative products or services. In implementing knowledge management practices in SMEs, thorough studies should be carried out. This is because not all elements of knowledge practices can be used directly. SMEs should seriously address issues of knowledge acquisition and storage as this would have an impact on their innovation capabilities if not well implemented. This research has few limitations such as small number of respondents. Perhaps bigger number would provide better information in exploring knowledge management practices and generic strategies of competitive advantage in SMEs. Another limitation is longitudinal approach which limit the exploration of rich information. Future studies could focus on expanding the generic strategies by including other elements such as focus and niche strategies. This research should be extended to other sectors of SMEs especially in high-tech technology-based SMEs and start-ups. This would help SMEs to realize the importance of knowledge management practices and be able to prepare the knowledge infrastructure to embrace the next industrial revolution.

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