

IMPACT OF KNOWLEDGE MANAGEMENT ON ORGANISATIONAL PERFORMANCE: AN EMPIRICAL STUDY OF ELECTRICAL AND ELECTRONICS INDUSTRY IN MALAYSIA

Lim Ing Keat ¹⁺, Thi Lip Sam ² and Kadzrina Abdul Kadir ³

^{1,2,3} College of Business, Universiti Utara Malaysia

⁺ Corresponding author: ingkeat08@gmail.com

Abstract

When encountering a business environment characterised with rapid changes, the manufacturing industry needs to emphasise knowledge management to enhance organisational performance. Knowledge management represents the processes and practices carried out in organisations to leverage their intellectual potential by enhancing the effectiveness and efficiency of their knowledge resources. A growing number of studies have demonstrated that knowledge management is related to organisational performance. However, the practice of knowledge management is not prevalent in many developing countries even though it has been claimed to be an essential component to enhance organisational performance. The purpose of this study was to examine the association of knowledge management and organisational performance using survey data obtained from 185 respondents in electrical and electronic (E&E) manufacturing firms in Malaysia. Partial least squares structural equation modelling (PLS-SEM) was used to test the research hypothesis. The finding indicated a significant relationship between knowledge management and organisational performance. The result provides empirical evidence that it is imperative for business firms to manage their knowledge resources to enhance their organisational performance. Practical implications of the research finding for E&E manufacturing firms are discussed.

Keywords: Knowledge, knowledge management, organisational performance, electrical and electronics (E&E), manufacturing industry

JEL Codes: D83, L25, M10

Introduction

Competition is getting stiffer in the current dynamic business environment with the emergence of a knowledge-based economy. Knowledge is perceived as an important resource to organisations, and organisational knowledge has to be effectively and efficiently managed for business organisations to leverage it in the dynamic business environment (Goh, Ryan, & Gururajan, 2006). Hence, knowledge management is receiving increasing attention among researchers and practitioners (Darroch, 2003; Massingham, 2014). The knowledge management field is multidisciplinary (Heisig, 2015). Scholars across different disciplines, such as management information systems, strategic management, human resources, organisational behaviour, marketing, library and information science, and sociology have been focusing on knowledge management studies (Serenko & Dumay, 2015).

The main reason for the wide-spread penetration of knowledge management is the underlying assumption that the management of knowledge somehow makes a difference to a firm's bottom line (Andreeva & Kianto, 2012). However, knowledge management is relatively new in the

Malaysian setting, and business firms are lagging behind those in the developed countries in adopting knowledge management. Some Malaysian business firms are uncertain of the benefits of knowledge management (Mohamad, Ramayah, & Lo, 2017). Besides, there is a relative shortage of empirical studies that examined the association between knowledge management processes and organisational performance in Malaysia. Hence, this study bridged the gap by examining the relationship between knowledge management process and organisational performance in Malaysia.

The objective of the research was to provide further evidence on the relationship between knowledge management and organisational performance in the Malaysian setting. As such, this paper begins with an overview of the background of the study followed by a review of the past literature on knowledge management and organisational performance. Subsequently, a description of hypothesis and subsequent methodology used in conducting this study are presented. The preceding section elaborated the model estimation and the evaluation result. Lastly, this research ends with a discussion on the result and a conclusion.

Background

Back in the early of 1970s, the unemployment rate in Malaysia was high while capital and technology were scarce. In light of this, the government had adopted the export-oriented industrialisation (EOI) strategy to promote labour-intensive and export-orientated industries in this country. With the availability of quality labour force and physical infrastructure, multinational corporations from Japan, United States of America, and Europe were offered attractive terms to set up their low-tech assembly operations in Malaysia (Yusuf & Nabeshima, 2009). Since then, the electrical and electronics (E&E) sector had taken root in Penang and soon spread to many other regions in Malaysia. Thus, the manufacturing sector in Malaysia, more specifically, E&E sector, turned out to be the new impetus for Malaysian economic growth (Lall, 1995). Albeit a worldwide recession in the mid-1980s, the Malaysian manufacturing industry had undergone an extraordinary growth rate of around 9 per cent during the 1980-1990s (Amir, 2000). Between 1987 and 1996, the manufacturing sector became the engine of growth, overtaking the agriculture sector as the most important contributor to the gross domestic product (GDP) in the mid-1980s. Manufacturing exports share in total exports increased from 33 per cent in 1985 to about 80 per cent by the middle of the 1990s (Mahani, 2002). By the end of 1995, Malaysia was the world's largest exporter of air-conditioners, semiconductors, oleochemicals, and latex-dipped products, such as gloves, rubber thread and catheters (Ministry of Finance Malaysia, 2015).

However, after the 1997-1998 Asian Financial Crisis, the Malaysian economic growth slowed, and the downturn remained until the Global Financial Crisis in 2008 which had made matters worse. The Asian Financial Crisis shocked Malaysia and put 13 years of continuous GDP growth to an end. Due to a severe reduction in investment spending, weak external demand, and a massive decline in household spending, the Malaysian economy contracted 7.4% in 1998. The electronics sector played an important factor in Malaysia's spectacular recovery from the Asian Financial Crisis. The Global Financial Crisis that took place in the late 2008 and continued in early 2009 had a negative impact on the Malaysian economy. As a result, the country's export volume and the overall GDP growth rate for 2009 fell significantly. Taking into account Malaysia's high export portion in GDP ratio, the tightening in external demand was the major factor burdening the economy. The primary direct source of the problem was the contraction of manufacturing demand, more particularly in the E&E, sector due to lower demand by the developed economies such as the United States of America and Western Europe (Mahani & Rasiah, 2009).

Currently, the Malaysian economy shows some signs of recovery. However, there is still a concern that the recovery might be unsustainable. The main reason is that Malaysia has lost its comparative and competitive advantages to some newly developing economies that began to open up and join the trend of export-led growth. Besides, Malaysia cannot compete with developed countries that possess new technologies. In other words, the slow pace of the nation's GDP growth since 1997 is largely due to a lack of knowledge. More particularly, technological knowledge is one of the reasons for the deterioration of the growth prospects in the Malaysian economy (Comin, 2014). Comin (2014) furthered that Malaysian firms need to acquire a body of knowledge to move to the knowledge-based manufacturing activities, and it is imperative for Malaysian E&E manufacturing industry to embark on knowledge management processes to achieve this objective.

Literature Review

Knowledge management

Over the past three decades, knowledge is viewed as one of the most important resources (Barley, Treem, & Kuhn, 2018). Firms have emphasised knowledge assets over traditional assets and the capability of firms to harness these knowledge assets (Denford & Chan, 2011). In other words, knowledge is the essence of a firm, and it has been described as a crucial component for the survival of firms in the current dynamic and competitive era (Ragab & Arisha, 2013). As such, knowledge needs to be managed to facilitate the competitive performance of business firms (Dayan, Heisig, & Matos, 2017).

Knowledge management refers to recognising and leveraging the collective knowledge in a firm to enhance the ability of the firm to compete (Barley et al., 2018; von Krogh, 1998). However, the focus of knowledge management varies depending on which view of knowledge is being adopted (Tubigi & Alshawi, 2015). From a business perspective, knowledge management is perceived as a capability. This is because a firm's know-how cannot lead the firm to competitive advantage if it is not capable of extracting the value to be delivered by such resources (Lee, Lanting, & Rojdamrongratana, 2016).

In light of this, the ability to extract value across its business units is through a series of knowledge management processes (Kamasak, Yavuz, & Altuntas, 2016; Zaim, Muhammed, & Tarim, 2018). Despite the processes or activities in managing knowledge being widely discussed in the literature, there is little consensus as to what knowledge management processes should encompass (Wee & Chua, 2013). In a comprehensive survey of 160 knowledge management frameworks, Heisig (2009) identified five broad categories of knowledge management processes commonly mentioned. They are knowledge acquisition, knowledge creation, knowledge utilisation, knowledge storage, and knowledge sharing (Heisig, 2009). Therefore, this study employed these processes as the constructs of knowledge management.

Organisational Performance

Organisational performance is the major concern for scholars or practitioners in business and management disciplines (Politis, 2002; Venkatraman & Ramanujam, 1987). Organisational performance is a broad concept consisting of what a company produces and its areas of interaction. In other words, organisational performance is an indicator which measures how well an enterprise achieves its objectives (Ho, 2008). A variety of meanings have been attributed to the concept of performance, and there is little consensus about how organisational performance is defined (Carlos Pinho, Paula Rodrigues, & Dibb, 2014). That is, measuring the performance of any organisations is a difficult task (Lee & Choi, 2003). A number of studies

have applied different ways to measure organisational performance, and previous studies have measured organisational performance through either perceptual assessments of management personnel or secondary data sources (Venkatraman & Ramanujam, 1987). Traditionally, for performance evaluation, objective measurements are preferable (Kim, 2004). Taking into account the difficulties in getting objective measures of selected aspects of organisational performance, the researchers opted to use perceived measures because such measure of performance can be a reasonable substitute for objective measures (Dess & Robinson, 1984).

Research Hypothesis

The Relationship of Knowledge Management and Organisational Performance

The main issue for academics in the area of knowledge management is attempting to examine how knowledge management affects organisational performance (Tubigi & Alshawhi, 2015). The knowledge-based theory posits that knowledge-based resources are generally difficult to imitate and can produce a long-term performance if properly managed. Generally speaking, knowledge management permits business firms to create, exploit, renew and apply knowledge in new ways to create the essential competencies to improve organisational performance (García-Morales, Lloréns-Montes, & Verdú-Jover, 2008). From the knowledge-based theory, the initiative of managing knowledge that has a positive influence on the organisational performance of business firms has been documented by numerous past studies.

In particular, several studies attempted to establish a linkage between knowledge management and organisational performance. Zack, McKeen, and Singh (2009) surveyed business firms, and the survey results indicated that knowledge management was positively associated with organisational performance. Zaim, Bayyurt, Tarim, Zaim, and Guc (2013) also examined the effect of knowledge management on the performance of Turkish airlines using a case study approach, and the results showed a positive relationship between knowledge management and organisational performance. In a similar vein, Al-Sa'di, Abdallah, and Dahiyat (2017) indicated knowledge management had a significant positive effect on operational performance based on a questionnaire survey from 207 manufacturing companies operating in the Jordanian capital Amman. Thus, this study proposed the following hypothesis:

H1: Knowledge management has a significant direct effect on organisational performance.

Methodology

Population and Sample

The scope of this study was the E&E manufacturing firms, and a quantitative approach using a self-administered questionnaire was adopted. In particular, a simple random sampling procedure was employed to draw the sample from the E&E manufacturing firms listed in Malaysia External Trade Development Corporation (MATRADE) online directory and the Federation of Malaysian Manufacturers (FMM) directory. Given the nature of the organisational-level variables, namely knowledge management and organisational performance, the unit of analysis of this study was organisation, and the participants of interest were managers or senior managers of the manufacturing firm. A total of 185 usable questionnaires were received. Using the power analyses carried out via the computer program G*Power, the minimum sample size to safeguard the results of the data analysis to achieve adequate statistical power was 89 (Faul, Erdfelder, Lang, & Buchner, 2014). Thus, with 185 responses, this study had fulfilled the technical requirement of the minimum sample size (Hair, Hult, Ringle, & Sarstedt, 2014).

Measures

The questionnaire items on organisational performance and knowledge management were adapted from Lee and Choi (2003). A Five-point Likert scale that reflects the degree of attitudinal favourableness was used to measure the variables, ranging from Strongly Disagree (1) to Strongly Agree (5). Both variables were measured by multiple items to increase their reliability and predictive validity (Hair et al., 2014). Organisational performance was operationalised as a first-order construct while knowledge management was operationalised as a second-order construct consisting of five first-order constructs (knowledge acquisition, knowledge creation, knowledge utilisation, knowledge storage, and knowledge sharing). When dealing with the second-order construct, it is necessary to distinguish between (at least) two levels of analysis (Jarvis, MacKenzie, & Podsakoff, 2003). Following Jarvis et al.'s (2003) criteria for measurement model operationalisation, this study used a reflective-formative hierarchical component model and the two-stage approach to measure knowledge management and its five lower-order components (Becker, Klein, & Wetzels, 2012). Becker et al. (2012) empirically found the repeated indicator approach can yield the most stable model estimation.

Model Estimation and Results Evaluation

Smart PLS 3 (Ringle, Wende, & Becker, 2015) was used to perform data analysis. In evaluating and reporting the results, this study followed the recent guideline for PLS-SEM (e.g., Hair et al., 2014) and assessed the measurement models before evaluating the structural model. To represent the knowledge management second-order construct and its five dimensions, this study followed a repeated indicators approach, and items were assigned to each dimension and a higher order construct incorporating all the items created.

First-order Reflective Measurement Model

The results of the convergent validity assessment are presented in Table 1. All indicators achieved satisfactory indicator loadings except for item KM_Acq 4, OP3 and OP5. These items were deleted. Composite reliability for the constructs ranged between 0.798 and 0.921, indicating that the items measuring the construct possessed high internal consistency. In a similar vein, the Average Variance Extracted (AVE) was higher than the threshold value of 0.5 (Hair et al., 2014). Hence, the convergent validity was established. Table 2 depicts the assessment of discriminant validity using the Fornell and Larcker (1981) criterion. Table 2 shows that the square root of AVE was larger than the construct correlation suggesting that discriminant validity was established. Based on the results, it can be reasoned that the first-order reflective measurement model was acceptable given the evidence of adequate reliability, convergent validity, and discriminant validity.

Table 1: Convergent Validity Assessment

Construct	Item	Loadings	Composite Reliability	AVE	Convergent Validity
Knowledge Acquisition	KM_Acq 1	0.772	0.798	0.569	Yes
	KM_Acq 2	0.794			
	KM_Acq 3	0.694			
	KM_Acq 4	Deleted			
Knowledge Creation	KM_Cre 1	0.776	0.820	0.604	Yes
	KM_Cre 2	0.805			
	KM_Cre 3	0.750			
Knowledge Utilisation	KM_Utili 1	0.611	0.812	0.527	Yes
	KM_Utili 2	0.809			
	KM_Utili 3	0.724			
	KM_Utili 4	0.747			
Knowledge Storage	KM_Store 1	0.857	0.921	0.745	Yes
	KM_Store 2	0.857			
	KM_Store 3	0.897			
	KM_Store 4	0.840			
Knowledge Sharing	KM_Share 1	0.760	0.817	0.531	Yes
	KM_Share 2	0.614			
	KM_Share 3	0.812			
	KM_Share 4	0.714			
Organisational Performance	OP1	0.787	0.798	0.570	Yes
	OP2	0.802			
	OP3	Deleted			
	OP4	0.670			
	OP5	Deleted			

Second-order Formative Measurement Model

After the first-order model had been established, the assessment was carried on with the second-order model that involved testing second-order structures that contained two layers of items. First, the latent variable scores of knowledge management were saved, and a new database was created. Further analysis was performed with the latent variable score of the low order components as the manifest variables. In the second-stage analysis, a new measurement

model was created, and the assessment of the second-order formative measurement model included collinearity issues and assessed the significance and relevance of the formative indicators. Based on the results shown in Table 3, VIF values were below the threshold value of 5. Therefore, collinearity was not an issue for the estimation of the second-order measurement model. However, Table 3 depicts that all items except knowledge creation items are insignificant. Hence, this study followed Hair et al.'s (2014) suggestion to check the outer loading result for retaining the insignificant items. In this case, the outer loading for the insignificant second-order formative indicator was above 0.5 and also significant at $t > 1.96$; hence, the insignificant second-order formative indicators were retained for further data analysis.

Table 2: Assessment of Discriminant Validity (Fornell & Larcker, 1981)

	1	2	3	4	5	6
1.Knowledge Acquisition	0.754					
2.Knowledge Creation	0.619	0.777				
3.Knowledge Sharing	0.619	0.668	0.728			
4.Knowledge Storage	0.481	0.543	0.642	0.863		
5.Knowledge Utilisation	0.558	0.639	0.646	0.582	0.726	
6.Organisational Performance	0.332	0.372	0.295	0.268	0.315	0.755

Table 3: Measurement Properties for Second-order Formative Construct

Construct	Items	Weights	VIF	t-value	Sig
Knowledge Management	Knowledge Acquisition	0.351	1.899	1.446	0.149
	Knowledge Creation	0.555	2.285	2.281**	0.023
	Knowledge Utilisation	0.206	2.135	0.0842	0.400
	Knowledge Storage	0.119	1.877	0.506	0.613
	Knowledge Sharing	-0.063	2.587	0.253	0.800

Note: >1.96**

Structural Model

After the reliability and validity measurements of the model had been established, the structural model assessment was performed to test the developed hypothesis. The result from the output of the bootstrapping PLS-SEM confirmed a significant positive relationship between knowledge management and organisational performance ($\beta = 0.401$, $t = 6.438$, $p < 0.01$) as shown in Table 4. Therefore, the hypothesis of this study was supported.

Table 4: Hypothesis Testing

Hypothesis	Std Beta	Standard Error	T-statistic	p-value	Result
H1	0.401	0.062	6.438**	0.000	Supported

Note:>1.96**

Discussion and Conclusion

Knowledge management in this study was examined as a multidimensional construct encompassing five dimensions, namely knowledge acquisition, knowledge creation, knowledge utilisation, knowledge storage, and knowledge sharing. The PLS-SEM results indicated that knowledge management was positively related to the organisational performance of E&E manufacturing firms in Malaysia. The result indicates that knowledge management will improve the organisational performance of the E&E manufacturing firms in Malaysia. Further, the significant result is consistent with past empirical works (e.g. Al-Sa'di et al., 2017; Zack et al., 2009; Zaim et al., 2013). Concerning managerial implications, this study has provided empirical validation for the link between knowledge management and organisational performance, which is beneficial for E&E manufacturing firms. The finding suggests that business firms should embark on knowledge management as a means to improve performance. The result also offers a general guideline for managers to implement knowledge management and provides a direction on which the knowledge management process should be carried out to improve organisational performance. In sum, knowledge and effective management of the knowledge have been known as a valuable and essential competitive asset for business firms to improve their performance. Hence, business firms should actively manage their knowledge assets in an organised manner and processing them effectively to harness the real value of knowledge.

References

- Al-Sa'di, A. F., Abdallah, A. B., & Dahiyat, S. E. (2017). The mediating role of product and process innovations on the relationship between knowledge management and operational performance in manufacturing companies in Jordan. *Business Process Management Journal*, 23(2), 349–376. <https://doi.org/10.1108/BPMJ-03-2016-0047>
- Amir, M. (2000). Export specialization and competitiveness of the Malaysian manufacturing: Trends, Challenges, and prospects. Paper presented at the Fifth Annual Conference on International Trade Education and Research, Melbourne.
- Andreeva, T., & Kianto, A. (2012). Does knowledge management really matter? Linking knowledge management practices, competitiveness and economic performance. *Journal of Knowledge Management*, 16(4), 617–636. <http://www.emeraldinsight.com/doi/full/10.1108/13673271211246185>
- Barley, W. C., Treem, J. W., & Kuhn, T. (2018). Valuing multiple trajectories of knowledge: A critical review and agenda for knowledge management research. *Academy of Management Annals*, 12(1), 278–317. <https://doi.org/10.5465/annals.2016.0041>
- Becker, J., Klein, K., & Wetzels, M. (2012). Hierarchical latent variable models in PLS-SEM: Guidelines for Using reflective-formative type models. *Long Range Planning*, 45(5–6), 359–394. <https://doi.org/10.1016/J.LRP.2012.10.001>
- C. N. Wee, J., & Y. K. Chua, A. (2013). The peculiarities of knowledge management processes in SMEs: the case of Singapore. *Journal of Knowledge Management*, 17(6), 958–972. <https://doi.org/10.1108/JKM-04-2013-0163>
- Carlos Pinho, J., Paula Rodrigues, A., & Dibb, S. (2014). The role of corporate culture, market orientation and organisational commitment in organisational performance. *Journal of Management Development*, 33(4), 374–398. <https://doi.org/10.1108/JMD-03-2013-0036>
- Comin, D. (2014). *Malaysia Beyond 2020*. Johor Bahru: UTM Press.
- Darroch, J. (2003). Developing a measure of knowledge management behaviors and practices. *Journal of Knowledge Management*, 7(5), 41–54. <https://doi.org/10.1108/13673270310505377>
- Dayan, R., Heisig, P., & Matos, F. (2017). Knowledge management as a factor for the formulation and implementation of organization strategy. *Journal of Knowledge Management*, 21(2), 308–329. <https://doi.org/10.1108/JKM-02-2016-0068>
- Denford, J. S., & Chan, Y. E. (2011). Knowledge strategy typologies: Defining dimensions and relationships. *Knowledge Management Research & Practice*, 9(2), 102–119. <https://doi.org/10.1057/kmrp.2011.7>
- Dess, G. G., & Robinson, R. B. (1984). Measuring organizational performance in the absence of objective measures: The case of the privately-held firm and conglomerate business unit. *Strategic Management Journal*, 5(3), 265–273. <https://doi.org/10.1002/smj.4250050306>
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2014). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191.
- Fornell, C., & Larcker, D. F. (1981). Evaluating Structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39. <https://doi.org/10.2307/3151312>
- García-Morales, V. J., Lloréns-Montes, F. J., & Verdú-Jover, A. J. (2008). The Effects of transformational leadership on organizational performance through knowledge and innovation. *British Journal of Management*, 19(4), 299–319. <https://doi.org/10.1111/j.1467-8551.2007.00547.x>

- Goh, G. G. G., Ryan, C., & Gururajan, R. (2006). The effect of culture on knowledge management practice: A qualitative case study of MSC status companies. *Kajian Malaysia*, 24(1&2), 97–128.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modeling (PLS-SEM)*. Thousand Oaks: Sage.
- Heisig, P. (2009). Harmonisation of knowledge management – comparing 160 KM frameworks around the globe. *Journal of Knowledge Management*, 13(4), 4–31. <https://doi.org/10.1108/13673270910971798>
- Heisig, P. (2015). Future research in knowledge management: Results from the global knowledge research network study. In E. Bolisani & M. Handzic (Eds.), *Advances in knowledge management* (pp. 151–182). Berlin: Springer International Publishing. https://doi.org/10.1007/978-3-319-09501-1_7
- Ho, L. (2008). What affects organizational performance? *Industrial Management & Data Systems*, 108(9), 1234–1254. <https://doi.org/10.1108/02635570810914919>
- Jarvis, C. B., MacKenzie, S. B., & Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research*, 30(2), 199–218. <https://doi.org/10.1086/376806>
- Kamasak, R., Yavuz, M., & Altuntas, G. (2016). Is the relationship between innovation performance and knowledge management contingent on environmental dynamism and learning capability? Evidence from a turbulent market. *Business Research*, 9(2), 229–253. <https://doi.org/10.1007/s40685-016-0032-9>
- Kim, S. (2004). Individual-level factors and organizational performance in government organizations. *Journal of Public Administration Research and Theory*, 15(2), 245–261. <https://doi.org/10.1093/jopart/mui013>
- Lall, S. (1995). Malaysia: Industrial success and the role of the government. *Journal of International Development*, 7(5), 759–773. <https://doi.org/10.1002/jid.3380070506>
- Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An Integrative view and empirical examination. *Journal of Management Information Systems*, 20(1), 179–228. <https://doi.org/10.2307/40398621>
- Lee, K.-W., Lanting, M. C. L., & Rojdamrongratana, M. (2016). Managing customer life cycle through knowledge management capability: A contextual role of information technology. *Total Quality Management & Business Excellence*, 28, 1–25. <https://doi.org/10.1080/14783363.2016.1150779>
- Mahani, Z. A. (2002). *Malaysia's past and present economic priorities*. FEA Working Paper No. 2002-8, Faculty of Economics & Administration, University of Malaya, Kuala Lumpur.
- Mahani, Z. A., & Rasiah, R. (2009). *The global financial crisis and the Malaysian Economy: impact and responses*. Kuala Lumpur: UNDP Malaysia.
- Massingham, P. (2014). An evaluation of knowledge management tools: Part 1 – Managing knowledge resources. *Journal of Knowledge Management*, 18(6), 1075–1100. <https://doi.org/10.1108/JKM-11-2013-0449>
- Ministry of Finance Malaysia. (2015). *Economic Report 2015/16*. Kuala Lumpur, Malaysia.
- Mohamad, A. A., Ramayah, T., & Lo, M.-C. (2017). Knowledge management in MSC Malaysia: The Role of information technology capability. *International Journal of Business & Society*, 18, 651–660.
- Politis, J. D. (2002). Transformational and transactional leadership enabling (disabling) knowledge acquisition of self-managed teams: the consequences for performance. *Leadership & Organization Development Journal*, 23(4), 186–197. <https://doi.org/10.1108/01437730210429052>

- Ragab, M., & Arisha, A. (2013). Knowledge management and measurement: A critical review. *Journal of Knowledge Management*, 17(6), 873–901. <https://doi.org/10.1108/JKM-12-2012-0381>
- Ringle, C. M., Wende, S., & Becker, J. (2015). *Smart PLS 3*. Bönningstedt. Retrieved from <http://www.smartpls.com>
- Serenko, A., & Dumay, J. (2015). Citation classics published in *Knowledge Management* journals. Part II: Studying research trends and discovering the Google Scholar Effect. *Journal of Knowledge Management*, 19(6), 1335–1355. <https://doi.org/10.1108/JKM-02-2015-0086>
- Tubigi, M., & Alshawi, S. (2015). The impact of knowledge management processes on organisational performance. *Journal of Enterprise Information Management*, 28(2), 167–185. <https://doi.org/10.1108/JEIM-01-2014-0003>
- Venkatraman, N., & Ramanujam, V. (1987). Measurement of business economic performance: An examination of method convergence. *Journal of Management*, 13(1), 109–122. <https://doi.org/10.1177/014920638701300109>
- von Krogh, G. (1998). Care in knowledge creation. *California Management Review*, 40(3), 133–153. <https://doi.org/10.2307/41165947>
- Yusuf, S., & Nabeshima, K. (2009). *Tiger economies under threat: A comparative analysis of Malaysia's industrial prospects and policy options*. Washington: DC: World Bank.
- Zack, M., McKeen, J., & Singh, S. (2009). Knowledge management and organizational performance: An exploratory analysis. *Journal of Knowledge Management*, 13(6), 392–409. <https://doi.org/10.1108/13673270910997088>
- Zaim, H., Muhammed, S., & Tarim, M. (2018). Relationship between knowledge management processes and performance: Critical role of knowledge utilization in organizations. *Knowledge Management Research & Practice*, 1–15. <https://doi.org/10.1080/14778238.2018.1538669>
- Zaim, S., Bayyurt, N., Tarim, M., Zaim, H., & Guc, Y. (2013). System dynamics modeling of a knowledge management process: A case study in Turkish Airlines. *Procedia - Social and Behavioral Sciences*, 99, 545–552. <https://doi.org/10.1016/J.SBSPRO.2013.10.524>