

Enhancing the Innovation Capability Through Knowledge Management Capability and Networking

H. Sulistyono

Sultan Agung Islamic University, Semarang, Indonesia

ABSTRACT: The innovation capability of companies and SMEs greatly determines performance and competitive advantage in a rapidly changing global environment. This condition requires companies and SMEs to increase their knowledge to create faster innovation capability. Good knowledge management capability in companies and SMEs will encourage the creation of new ideas about product and process innovation. This study aims to examine the effect of knowledge management capability, networking capability, and various knowledge of the innovation capability and competitive advantage of SMEs. The sample of this study was 254 SME entrepreneurs in the field of creative fashion and handicraft industries (response rate of 84.67%). Data collection was done by using a questionnaire instrument distributed to every SME entrepreneur. Data analysis techniques used was the Structural Equation Model (SEM) with the AMOS program. The results of the study showed that knowledge management capability, networking capability, and knowledge sharing have a significant effect on improving innovation capability and competitive advantage.

Keywords: Innovation capability, knowledge management, networking, performance.

1 INTRODUCTION

Knowledge factors play an important role in creating innovation capability in a company. Saunila & Ukko (2011) focused on the importance of behavior in exploiting external networking and knowledge to improve innovation capability.

Networking capability is an understanding, willingness, and ability of new businesses to intentionally engage their network of business relationships to start gaining access and mobilize, as well as resources with other network actors. Better networking capability between companies and SMEs will encourage increased innovation capability. Networking capability encourages companies to develop networks and gain access to network resources that are important for product innovation (Mu, 2013, 2014; Mu & Di Benedetto, 2012).

Innovation is the incorporation of new knowledge with existing knowledge to reconfigure organizational capabilities and competencies, which produce value-added products. Knowledge management capability (KMC) for companies and SMEs need to be well managed to encourage the creation of product and process innovation capability in achieving competitive advantage. KMC is an ability of companies

to increase existing knowledge through continuous learning to create and protect new knowledge (Bose, 2003) and provide and share intangible assets to win the market competition (Tseng & Lee, 2014). Hayashi (2004) stated that an ability to create, store, disseminate, and utilize knowledge and expertise is a strategy for organizations to compete. Some studies showed that KMC influences organizational performance (Hasan & Al-Hawari, 2003).

Knowledge sharing is a fundamental means where employees or organizations can exchange knowledge and contribute to the application of knowledge, innovation, and, ultimately, organizational competitive advantage (Wang & Noe, 2010). Some studies have focused more on the direct effect of KMC to improve performance and competitive advantage, especially in manufacturing companies rather than SMEs. Freel (1999) identified critical skills gaps in SMEs' innovation, such as knowledge of technical skills, managerial competence, and poor marketing skills. The lack of studies on strengthening knowledge management capability, networking, and knowledge sharing in improving innovation of SMEs becomes a gap in this research that needs to be identified and tested further. Therefore, this study aims to investigate and test KMC, networking, and

knowledge sharing, and also verify the relationship patterns in improving SMEs' performance and competitive advantage.

1.1. *Knowledge management capability as a determinant of innovation capability*

Teresa (2009) defined Knowledge management capability as the company's ability to acquire, convert, and apply knowledge. Knowledge management capability combines process perspectives that focus on knowledge process capability and infrastructure perspectives that focus on enablers, namely, knowledge infrastructure capability (Lee & Choi, 2003).

Several studies showed that knowledge management activities affect organizational effectiveness, user satisfaction, and net benefits (Chidambaranathan & Swarooprani, 2015; Wang & Yang, 2016). Knowledge as part of organizational assets has a positive impact on innovation, superior performance, and competitive advantage (Andreeva & Kianto, 2012; Shannak et al., 2012). Teresa (2009) found that knowledge management capabilities have a significant effect on the process and product innovation. Tacit knowledge transfer has a significant effect on innovation capability and performance (Cavusgil et al., 2007). Liao & Barnes (2015) found that knowledge acquisition will increase the flexibility of product innovation. Research conducted by (Darroch, 2005) concluded that knowledge management

H₁: Knowledge management capability has a significant effect on innovation capability.

1.2. *Networking capability as determinant of innovation capability*

Companies that have many network partners will encourage innovation because this bond will give them important resources, information, and technological knowledge. Zheng et al. (2013) found that network resources have a significant effect on innovation. Networking capability and buyer-supplier relationship interactions positively affect product innovation performance by providing three substantive benefits, namely, access to ideas and concepts produced by new buyers, better understanding buyer preferences, and reducing uncertainty (Wu et al., 2014). The research results by Wu et al. (2014) concluded that there was a significant effect between buyer-supplier relationship interactions on product innovation.

H₂: Networking capability has a significant effect on innovation capability.

1.3. *Knowledge Sharing as a determinant of innovation capability*

According to Nonaka (2007), knowledge sharing activities in organizations are processes where employees exchange knowledge both tacit and explicit to create new knowledge. Several studies have examined the importance of knowledge sharing on innovation capabilities. Liao et al. (2009) also explained that knowledge sharing activities have a positive effect on improving organizational innovation. In addition, Hu et al. (2012) found a positive relationship between knowledge sharing and innovation activities. Yang et al. (2018) found that knowledge sharing has a significant effect on product and process innovation. Knowledge sharing that is shared by knowledge donating and knowledge collecting has a significant effect on the ability of innovation Podrug et al. (2017); Lin (2007). Wang & Wang (2012) found that explicit knowledge sharing has a significant effect on innovation speed and innovation quality, whereas tacit knowledge sharing affected innovation quality, but it has no effect on innovation speed furthermore.

H₃: Knowledge sharing has a significant effect on innovation capability.

1.4. *Knowledge management capability as a determinant of competitive advantage*

Knowledge is the company's strategic resources in creating value and innovation so that if it is maximized, companies and SMEs will improve performance and competitive advantage. According to Andrew (2005), KMC is an important factor in creating a competitive advantage for companies and SMEs. KMC has a strong relationship with innovation and product improvement. Companies that have the resources of knowledge and strategic capabilities will more easily survive, grow, and gain a sustainable competitive advantage (Kiessling et al. 2009). The study conducted by Pee & Kankanhalli (2016) showed that knowledge management capability has a significant effect on organizational effectiveness and company competitive advantage.

H₄: Knowledge management capability has a significant effect on competitive advantage.

1.5. *Networking capability as determinant of competitive advantage*

Networking capability is the company's ability to develop and utilize relationships between internal and external organizations. Walter et al. (2006) sug-

gested that networks developed from strong relationships will have an impact on the company's competitive advantage. Companies will be easier to anticipate changes in the environment, maintain current business, and gain a competitive advantage. Dayan et al. (2013) stated that networking capability is very important in creating network value and increasing overall chain profits, so members can develop strong relationships in the efforts of alliance network companies to create knowledge and value in achieving performance and competitive advantage. (Walter et al., 2006).

H₅: Networking capability has a significant effect on competitive advantage.

1.6. *Knowledge sharing as determinant of competitive advantage*

Wang & Noe (2010) explained that knowledge sharing is an action in which companies or employees can exchange knowledge and contribute to the application of knowledge, innovation, and, ultimately, organizational competitive advantage. Meanwhile, Teece (2007) stated that knowledge is an intangible asset that is valuable for creating and maintaining a competitive advantage. Knowledge is an important resource for developing an organization's competitive advantage. Law & Ngai (2008) found that knowledge sharing has an impact on better performance in creating competitive advantages through improving business processes, offering products and services from a company. Pee & Kankanhalli, (2016) showed that knowledge management capability has a significant effect on organizational effectiveness, which leads to competitive advantage.

H₆: Knowledge sharing has a significant effect on competitive advantage.

1.7. *Innovation capability as a determinant of competitive advantage*

Some studies conducted by several researchers about SMEs found that the main determinant of competitive advantage of SMEs is the ability of SMEs to develop unique products, and their flexibility in adopting new technologies (Williams & Hare, 2012). Lee & Hsieh (2010) concluded that the capability of innovation has a direct effect on the company's competitive advantage. The research conducted by Hariss et al. (2003) found that the age of the company does not significantly influence the relationship between innovation and competitive advantage. Moreover, Higon (2011) found that the age of the company has a significant impact on innovation and competitive advantage. Research conducted

by Aziz & Samad (2015) on SMEs in the food industry in Malaysia found that innovation has a significant effect on competitive advantage.

H₇: Innovation capability has a significant effect on competitive advantage.

2 RESEARCH METHODS

The sample in this research was 254 SME actors in the field of creative fashion and handicraft industries in Central Java Province, Indonesia. The sampling used a purposive sampling method based on the criteria that the SMEs are in creative and handicraft industries, have been operating for at least ten years, having employees at least 20 people, and its business still exists up to now.

Knowledge management capability items were adopted from Pérez-López & Alegre (2012). A Sample item is "My organization has processes to gain knowledge on our suppliers, customers, and partners". Networking capability items adopted Walter et al. (2006). A Sample item is "I almost always solve problems constructively with our partners". Knowledge sharing items adopted Liao et al. (2009). A Sample item is "I often share information to my colleagues related to new information I acquire". Innovation capability was measured by four items adopted Andreeva & Kianto (2012) & Liao et al. (2009). A sample item is "I often use new ideas to get things done". Competitive advantage items adopted Chen et al. (2006). A Sample item is "my company produces lower costs than competitors".

3 RESULTS AND DISCUSSIONS

Based on the output of data processing with Amos, it can be concluded that there is a distribution of data that meets the assumptions of normality, both univariate and multivariate normality. This can be seen from the coefficient of c.r. *Skewness* and *Kurtosis* that have a value lower than ± 2.58 ($Z_{\alpha=0,05/2}$). The results of the data showed that the determinant value of the sample covariance matrix is greater than zero. It means that data is free from multicollinearity. The determinant of the sample covariance matrix is 0.00124. The results show that all criteria are met so that the model is categorized as good.

The value of each index produced from the analysis of this research data is shown in table 1.

Table 1. Model Conformity Index

Indicator	Output	Cut off value	Sig.
Chi-Squared (χ^2)	287.136	< 303.970	Good
Probability Sig. Cont.	0.167	> 0.05	Good
CMIN/DF	1.084	≤ 2.0	Good
GFI	0.927	>0.90	Good
AGFI	0.911	>0.90	Good
TLI	0.991	>0.95	Good
CFI	0.992	>0.95	Good
RMSEA	0.017	≤0.08	Good

Effect of Knowledge Management capability (KMC) on Innovation capability (IC). Based on the estimated parameters of testing the effect of KMC on IC (β_2), it shows significant results with a standardized estimate value of $\beta_2 = 0.228$, and critical ratio (CR) of 3.135. These values have met the hypothesis acceptance requirements, namely $CR > 1.96$, at a significance level of less than 5%. So, there is no reason to reject hypothesis 2 (H2), meaning that the effect of Knowledge Management capability on innovation capability is proven significant.

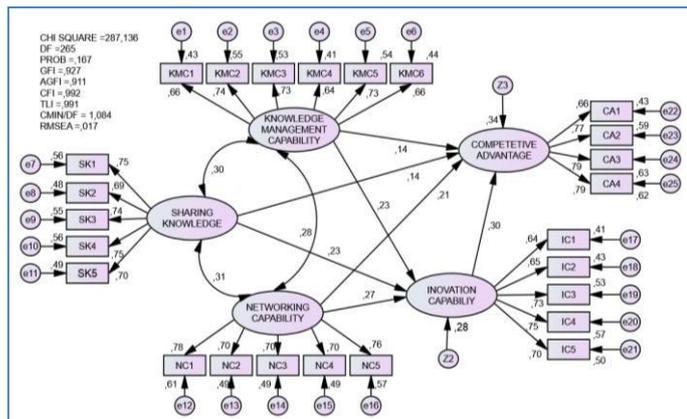


Figure 1. Full structural model

Effect of Networking capability (NC) on Innovation capability (IC). Based on the estimated parameters of testing the effect of NC on IC (β_1), it shows significant results with a standardized estimate value of $\beta_1 = 0.270$ and a critical ratio (CR) of 3.657. These values have met the hypothesis acceptance requirements, namely $CR: 1.96$, at a significance level of less than 1%. So, there is no reason to reject hypothesis 1 (H1), meaning that the effect of networking capability on Innovation capability is proven significant.

Effect of Knowledge Sharing (KS) on Innovation capability (IC). Based on the estimated parameters of testing the effect of KS on IC (β_3), it shows significant results with a standardized estimate value of $\beta_3 = 0.233$ and a critical ratio (CR) of 3.187. These values have met the hypothesis acceptance require-

ments, namely the value of $CR > 1.96$ at the significance level of p-value less than 5%. So, there is no reason to reject hypothesis 3 (H3), meaning that the effect of knowledge sharing (KS) on Innovation capability (IC) is proven significant.

Effect of Knowledge Management Capability (KMC) on Competitive Advantage (CA). Based on the estimated parameters of testing the effect of KMC on CA (β_4), it shows significant results with a standardized estimate value of $\beta_4 = 0.140$ and a critical ratio (CR) of 2.018. These values have met the hypothesis acceptance requirements, namely the value of $CR > 1.96$ at the significance level of p-value less than 5%. So, there is no reason to reject hypothesis 4 (H4), meaning that the influence of KMC on IC is proven significant.

Effect of Networking Capability (NC) on Competitive Advantage (CA). Based on the estimated parameters of testing the effect of NC on CA (β_5), it shows significant results with a standardized estimate value of $\beta_5 = 0.212$ and a critical ratio (CR) of 2.966. These values have met the hypothesis acceptance requirements, namely the value of $CR > 1.96$ at the significance level of p-value less than 5%. So, there is no reason to reject hypothesis 5 (H5), meaning that the influence of NC on CA is proven significant.

Effect of Knowledge Sharing (KS) on Competitive Advantage (CA). Based on the estimated parameters of testing the effect of KS on CA (β_6), it shows significant results with a standardized estimate value of $\beta_6 = 0.141$ and a critical ratio (CR) of 1.994. These values have met the hypothesis acceptance requirements, namely the value of $CR > 1.96$ at the significance level of p-value less than 5%. So, there is no reason to reject hypothesis 6 (H6), meaning that the effect of KS on CA is proven significant.

Effect of Innovation capability on Competitive Advantage (CA) Based on the estimated parameters of testing the effect of IC on CA (β_7), it shows significant results with a standardized estimate value of $\beta_7 = 0.305$ and a critical ratio (CR) of 3.792. These values have met the hypothesis acceptance requirements, namely the value of $CR > 1.96$ at the significance level of p-value less than 5%. So, there is no reason to reject hypothesis 7 (H7), meaning that the effect of IC on CA is proven significant.

The results of the study found that good knowledge management capabilities of companies and SMEs will encourage the creation of innovation capabilities. The results of the study support the findings of Teresa (2009); Cavusgil et al. (2007); Liao and Barnes (2015); Darroch, (2005). Ideas for product and process development will be carried out

more quickly through mastery, absorption, acquisition, and implementation of knowledge. Through the acquisition, development, and implementation of knowledge will encourage the creation of superior SME performance and competitive advantage. Factors that drive the success of SME innovation are the ability to improve technical skills and managerial competencies, especially knowledge management (Freel, 1999). SMEs are generally characterized as having the ability to respond more quickly to changes that have significant implications for innovation. However, SMEs face the challenge of a lack of knowledge, skills, and human resources (Liao & Barnes, 2015). Networking capability can encourage the improvement of innovation capabilities and competitive advantage of SMEs. SMEs that often interact with colleagues and various stakeholders will get a lot of additional ideas, insights, and understanding in developing product and process innovations, especially in responding to dynamic environmental changes. The results of the study support the findings of Zheng et al. (2013) and Wu et al. (2014). Knowledge sharing is beneficial in improving innovation capabilities and competitive advantage of SMEs. Sharing knowledge of tacit knowledge and explicit knowledge about new information and insights among SMEs, both formally and informally through various associations and government meetings, will encourage an increase in new product ideas and innovations. The results of the study support the findings of Liao et al. (2009); Hu et al. (2012); Yang et al. (2018); Podrug et al. (2017); Lin (2007); Wang & Wang (2012); and Pee & Kankanhalli, (2016).

4 CONCLUSION

This study discusses the importance of knowledge management capability, networking capability, and knowledge sharing in encouraging increased innovation capability. The results of the study showed that KMC had a significant effect on improving innovation capability and competitive advantage. Networking capability also had a significant effect on innovation capability and competitive advantage. Companies and SMEs that often innovate products and processes will quickly launch new products and gain competitive advantage.

This study was focused on the field of SMEs engaged in the field of creative fashion and handicraft whose sample size is still relatively small compared to all types of SMEs, so the generalization is still relatively limited to handicraft SMEs. Future research needs to take samples that represent all types

of SMEs and consider the factors of stakeholder support, organizational value, and the ability to absorb knowledge in studies of KM capability and networking capability in enhancing innovation capability.

REFERENCES

- 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.
- Andrew, L.S.G. 2005. Harnessing knowledge for innovation: an integrated management framework. *Journal of Knowledge Management* 9(4): 6-18.
- Aziz, N.N. & Samad A.S. 2016. Innovation and Competitive Advantage: Moderating Effects of Firm Age in Foods Manufacturing SMEs Malaysia, *Procedia Economics and Finance* 35: 256 – 266
- Bose, R. 2003. Knowledge management-enabled health care management systems: capabilities, infrastructure, and decision-support. *Expert Systems with Applications* 24(1): 59-71.
- Chidambaranathan, K., & Swarooprani, B.S. 2015. Knowledge Management as a Predictor of Organizational Effectiveness: The Role of Demographic and Employment Factors. *Journal of Academic Librarianship* 41(6): 758– 763.
- Darroch, J. 2005. Knowledge management, innovation and firm performance. *Journal of Knowledge Management* 9(3): 101–115.
- Freel, M. 1999. Where are the skills gaps in innovative small firms?. *International Journal of Entrepreneurial Behavior & Research* 5(3): 144-54.
- Hasan, H. & Al-hawari, M. 2003. Management styles and performance: a knowledge space framework. *Journal of Knowledge Management* 7(4): 15-28.
- Hayashi, H. 2004. *A comparison of the emergency management system between Japan and the United States.*” Assessment of post-event management processes using multi-media disaster simulation. Meguro, K., ed., U.S.–Japan Cooperative Research on Urban Earthquake Hazard Mitigation, Univ. of Tokyo, 25–30.
- Higon, D. A. 2011. The impact of ICT on innovation activities: Evidence for UK SMEs. *International Small Business Journal* 30(6): 684–699.
- Kiessling, T.S., Richey, R.G., Meng, J., & Dabic, M. 2009. Exploring knowledge management to organizational performance outcomes in a transitional economy. *Journal of World Business* 44(4): 421-433.
- Lee, J.S. & Hsieh, C.J. 2010. A Research In Relating Entrepreneurship, Marketing Capability, Innovative Capability And Sustained Competitive Advantage. *Journal of Business & Economics Research* 8(9): 109–119.
- Liao, S., Fei, W & Chen, C. 2009. Knowledge sharing, absorptive capacity and innovation capability: an empirical study of Taiwan’s knowledge-intensive industries. *Journal of Information Science* 33 (3): 160-167.
- Liao Y. & J. Barnes. 2015. Knowledge acquisition and product innovation flexibility in SMEs. *Business Process Management Journal* 21(6): 1257-1278

- Lin, H.F. 2007. Knowledge sharing and firm innovation capability: an empirical study. *International Journal of Manpower* 28(3/4): 315–332.
- Hu, M., Meng-lei, O., Tsung-Lin, C., Haw-Jeng, L., Lee-Cheng. 2012. Effects Social Exchange and Trust on Knowledge Sharing and Service Innovation. *Social Behavior and Personality* 40(5): 783-800.
- Mu, J. 2013. Networking capability, new venture performance and entrepreneurial rent. *Journal of Research in Marketing and Entrepreneurship* 15(2): 101–123.
- Mu, J. 2014. Networking capability, network structure and new product development performance. *IEEE Transactions on Engineering Management* 61(4): 599–609.
- Mu, J. & Di Benedetto, C.A. 2012. Networking capability and new product development. *IEEE Transactions on Engineering Management* 59(1): 4–19.
- Nonaka, I. 2007. The knowledge-creating company. *Harvard Business Review* 85(7/8): 162-171.
- Pee, L. G., & Kankanhalli, A. 2016. Interactions among factors influencing knowledge management in public-sector organizations: A resource-based view. *Government Information Quarterly* 33(1): 188–199.
- Podrug, N., Filipovi, D. & Matea K. 2017. Knowledge sharing and firm innovation capability in Croatian ICT companies. *International Journal of Manpower* 38(4): 632-644.
- Saunila, M. & Ukko, J. 2011. Intangible aspects of organizational innovation capability in Finnish SMEs. *Proceedings of 6th International Forum on Knowledge Asset Dynamics*, Tampere, June.
- Shannak, R., Masa'deh, R. & Akour, M. 2012. Knowledge management strategy building: literature review. *European Scientific Journal* 8(15): 143-168.
- Cavusgil, S.T., Calantone, R.J. & Zhao, Y. 2007. Tacit knowledge transfer and firm innovation capability. *Journal of Knowledge Management* 18(4): 6–21.
- Teece, D.J. 2007. Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal* 28: 1319– 1350.
- Teresa, T.C. 2009. *Encyclopedia of Human Resources Information System*. New York: Information System Reference.
- Tseng, S.M & Lee, S.P. 2014. The effect of knowledge management capability and dynamic capability on organizational performance. *Journal of Enterprise Information Management* 27(2): 158-179.
- Walter, A., Auer, M. & Ritter, T. 2006. The impact of network capabilities and entrepreneurial orientation on university spin-off performance. *Journal of Business Venturing* 21(4): 541-567.
- Wang, S. & Noe, R.A. 2010. Knowledge sharing: A review and directions for future research. *Human Resource Management Review* 20: 115–131.
- Wang, Z., & Wang, N. 2012. Knowledge sharing, innovation and firm performance. *Expert Systems with Applications* 39(10): 8899–8908.
- Wang, M.H. & Yang, T.Y. 2016. Investigating the success of knowledge management: An empirical study of small and medium-sized enterprises. *Asia Pacific Management Review* 21(2): 79–91.
- Williams, D. & Hare, L. 2012. *Competitiveness of Small Hotels in Jamaica: An Exploratory Analysis*. EBSCOhost.
- Wu, J., Wu, Z. & Si, S. 2014. The influences of Internet-based collaboration and intimate interactions in buyer-supplier relationship on product innovation. *Journal of Business Research*.
- Yang, Z., Nguyen, V.T. & Le, P.B. 2018. Knowledge sharing serves as a mediator between collaborative culture and innovation capability: an empirical research. *Journal of Business & Industrial Marketing* 33(7): 958–969.
- Zheng, S., Li, & Wu., X. 2013. Network resources and the innovation performance Evidence from Chinese manufacturing firms. *Management Decision* 51(6): 1207-1224.