THE INFLUENCE OF NETWORK CAPABILITY AND INNOVATION ON KNOWLEDGE CREATION

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DOI: https://doi.org/10.37178/ca-c.23.2.022

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Abstract

Small and medium enterprises have been seen as the main engine in obtaining healthy economic growth. Despite their growth, SMEs are faced with high competition. For this reason, for business people, the right strategy can be very important to gain competitive advantage. This study aims to identify how the influence of network capability and innovation capability on knowledge creation. The results in this study indicate that network capability has a strong enough influence in building competitive advantage. Based on the results of the coefficient of determination obtained by 72.4%, this shows that the two independent variables, namely network capability and innovation capability, are important factors in forming knowledge for SMEs, especially in the city of Ciamis, while the remaining 27.6% is influenced by other variables. which were not investigated in this study.

Keywords*: Network Capability, Innovation, Knowledge Creation*

Introduction

The capacity of businesses to acquire and disseminate knowledge is critical to their success and competitiveness [1]. That is why researchers and practitioners pay great attention to and strive for effective and efficient knowledge management (Yang et al., 2018). In this regard, organizational relationships, business networks, and connections with stakeholders play an important role in acquiring knowledge in order to compete [1, 2]. Large organizations have substantial financial and managerial resources for acquiring and processing knowledge. On the other hand, small and medium-sized enterprises (SMEs) have limited size and resources [3], which if left unchecked can hinder the progress of SMEs themselves. According to [4] Small businesses are seen as the main engine of healthy economic growth. SMEs must act as change agents by developing new products and services, applying more productive methods, and creating new business models [5]. As a result, new jobs are generated, local communities grow and communities prosper [6, 7].

In an increasingly complex world, of course, requiring increasingly complex solutions, knowledge creation develops from collaborative activities where information

is exchanged, judgments are tested and opportunities are recognized to be increasingly important [8]. Thus, network capability forms the basis for entrepreneurial success [9]. In addition, in this technological era, SMEs are struggling due to rapid technological developments, constantly changing market environment, and shorter product life cycles (Zhang & Merchant, 2020). In this challenging and uncertain situation, it is very important for SMEs to acquire the knowledge and resources to be more innovative and competitive than others. According to[10], entrepreneurs need to develop strong relationships and connections with stakeholders in order to compete. Thus, a connection is seen as very important for creating knowledge and exchanging information in order to identify potential opportunities and threats [11]. [12]assumes that building networking capabilities and developing social capital has great potential to make SME business people more innovative.

Previous research conducted by [13] linked networking capabilities to various organizational prospects, such as corporate performance, knowledge management [1], learning [14], sustainable performance, creativity, and cognitive processes[15]. However, there is still little literature that states whether network capabilities improve a company's ability to transform existing processes into new ones (innovation capability). Therefore, the aim of this study was to explore this relationship in enhancing knowledge creation in the context of small and medium enterprises (SMEs). In addition, what distinguishes this research from previous research is that most of the studies on network capability are often conducted in large and heterogeneous companies. Meanwhile, this study takes the recommendation from Miller by testing the model on small-sized companies.

This research is divided into five parts, first, it is presented about the things behind the research, second, it is presented about the relevant theories and hypotheses, the third is presented about the types of research and methods, the fourth is presented about the results and discussion, and the last is presented about the conclusions. and advice.

THEORY AND HYPOTHESIS STUDIES

Network Capability

Network Capability is defined as the company's ability to initiate, develop and utilize internal organization and external inter-organizational relationships. [1] stated that the network developed from strong relationships can provide benefits for the company [13]. Strong relationships allow entrepreneurs and companies to gather market information for solving problems and opportunities. The capabilities that enable companies to succeed in networking are critical factors in knowledge creation and value creation. The company's access to potential market locations is suggested by the network [16]. Therefore, network capability is a development activity that enables companies to develop, manage and exploit opportunities through healthy connections and relationships [17]. Researcher [18] argues that building network capabilities is beneficial for companies as well as improving performance. Networking capabilities are critical for enterprises, especially for entrepreneurial SMEs, as they provide substantial assistance in building new and current business processes. [19] states that network capabilities affect the creation of knowledge in business. This is because network capabilities can support mechanisms for learning about customer needs and anticipating market opportunities.

H1. Network capability affects knowledge creation

Innovation Ability

Definitions of innovation vary widely, but generally emphasize the commercialization of new knowledge or technology to generate increased sales and business value. [20] defines innovation as the design, invention, development and/or implementation of new or modified products, services, processes, systems,

organizational structures or business models for the purpose of creating new value for customers and financial benefits for the company [21]. [22] emphasizes that innovation capabilities enable organizations to apply the necessary and appropriate technology to develop new products, meet market needs, and survive in the competition [23]. Furthermore, innovation capabilities enable companies to manage their business operations in order to remain competitive in the competition. [24] views that the ability of innovation is the ability of companies to introduce new ideas in their product strategy to add to their product portfolio. [25] explains that to implement the innovation process, companies must be able to improve their capabilities so that they can influence knowledge creation.

H2. Innovation ability affects knowledge creation

Knowledge Creation

Knowledge creation plays an important role in business development. When knowledge spread from network partners is combined or when knowledge is obtained from network partners and combined with existing knowledge, good business performance will be created[26]. Knowledge creation supports new and novel ideas, namely innovation in business[27], and knowledge creation helps companies, especially SMEs, to take advantage of market opportunities and compete aggressively to outperform competitors[28]. Resource advantage theory suggests knowledge as a company's strategic resource. Knowledge creation and utilization can help companies develop market offerings that provide value to customers and increase the efficiency of business operations[29]. New knowledge can help small businesses develop innovative new products and services that enhance existing market offerings. Likewise, new knowledge can help small businesses anticipate threats that occur. Knowledge creation can also be influenced by several factors, one of which is the role of network capabilities and innovation [1]

H3. Network capability and innovation ability affect knowledge creation

RESEARCH METHODS

Research Subject

The subjects in this study were SMEs, especially in the city of Ciamis, with 150 questionnaires distributed, but 120 were returned. The sample was taken purposively, namely SMEs who have the criteria of 1 year in running a business with consideration of having experience that can be observed objectively.

Definition of Variables and Indicators

Variable	Description	Dimension	Source
Network Capability	The company's ability to initiate, develop and utilize internal organizational and external inter-organizational relationships for profit	Internal communication Coordination Relationship skills Knowledge	[13]
Innovation Capability	The company's ability to introduce new ideas in their product strategy to add to their product portfolio	Discovery design Product/service development Organizational systems and structures Business models	[30]
Knowledge Creation	Product-related information may be passed from one person to another.	Competitive aggressive Innovation	[31]

DATA ANALYSIS METHOD

This study uses a quantitative method approach using multiple regression analysis techniques. The primary data in this study were in the form of questionnaires given directly to respondents as many as 150 consumers, but 120 questionnaires were returned. In this case, the respondents are small and medium businesses in the city of Ciamis, West Java. While secondary data is collected from several publications either through journals and books. The technique used in measuring the variables uses a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). The data collected from the questionnaires were analyzed using multiple linear regression analysis using SPSS 25 for window software.

RESULTS AND DISCUSSION

Respondent Profile

Based on the results of the distribution of the questionnaires that have been carried out, the researchers obtained the following characteristic data:

Table 1

Characteristics of respondents

Profil Responden		Persentase
Gender	Male	73%
	Female	27%
Age	< 17 year	2%
	18 - 20 year	20%
	21 – 23 year	68%
	> 26 year	10%
Based on Income/month	<Rp. 3 jt	73%
	Rp. 3 jt - Rp. 6 jt	21%
	Rp. 6.1 jt - Rp. 9 jt	3%
	Rp. 9.1 jt- Rp. 12 jt	2%
	> Rp. 12 jt	1%
Based on the length of business	1-2 year	11%
	2-3 year	70%
	3-4 year	12%
	4-5 year	7%

Source: Data processed, 2021

Data from the responses of 120 respondents, the researchers obtained the characteristics of the respondents that showed that 73% of respondents were more dominated by men than women. Meanwhile, based on monthly income, the majority are in the range of 3 million. And based on the length of business is above 2 years. Based on the results of descriptive analysis, each variable in this study is on average at 75% which indicates that each variable has a good response. In this study also obtained that each statement that has been processed shows a value above 0.5, this indicates that the items in this study are valid. And based on the results of the reliability test, each variable has a cronbach alpha value above 0.7, meaning that each research variable is reliable.

Normality and Multicollinearity Test

Based on the results of the processing of the questionnaire, the researchers found the result that the significance level was set (0.200 > 0.05), it can be concluded that the unstandardized residual data was normally distributed. The results of multicollinearity obtained that the network capability and innovation ability variables have tolerance values of 0.537 and 0.514 with VIF values of 1.818 and 1.613, respectively. These results can be interpreted that there is no multicollinearity between

the independent variables and meets the requirements of the classical assumption of multicollinearity because the tolerance is greater than 0.10, while the VIF is less than 10.00 (table 2).

Table 2

Multikolinearitas test

Model		Collinearity Statistics	
		Tolerance	VIF
1	Network Capability (X1)	.537	1,818
	Innovation Capability (X2)	.514	1,613
a. Dependent Variable : Knowledge Capability			

Source: Data processed, 2021

Regression Test Results

From the output above, it is known that the intercept and regression coefficient values can be formed so that a multiple linear regression equation can be formed as follows:

Y = 6.013 + 0.241 X1 + 0.286 X2 + e

Table 3

Regresion test

Model		Unstandardized Coefficients		Standardized Coefficients	t	sig.
		B	Std. Error	Beta		
1	(Constant)	6,013	1,497		4,038	0,000
	Network capability (X1)	0,241	0,064	0,250	3,334	0,001
	Innovation Capability (X2)	0,286	0,073	0,179	2,708	0,014

Source: Data processed, 2021

The above equation can be interpreted as follows:

a = 6.013 means that if the variables of network capability and innovation capability are zero, the knowledge creation variable will be worth 6.013 units, thus it can be seen that the regression lines intersect the Y axis at the point of 6.013.

b1 = 0.241 means that if the network capability increases by one unit while the other variables are constant, then the network capability variable will increase by 0.241 units.

b2 = 0.286 means that if innovation capability increases by one unit while the other variables are constant, then the innovation capability variable will increase by 0.286 units.

Partial and Simultaneous Hypothesis Testing

From the results of the acquisition of the values above, it can be seen that the t-count value obtained by the network capability variable is 3.334 > t table (1.97214), in accordance with the hypothesis testing criteria that Ho is rejected and Ha is accepted. This means that partially, the network capability variable has a significant effect on the knowledge of SMEs. The innovation ability variable was obtained at 2.708 > t table (1.97214), in accordance with the criteria for testing the hypothesis that Ho was rejected and Ha was accepted. This means that partially, the variable of innovation

ability has a significant effect on the creation of knowledge. The simultaneous testing is as follows:

Table 4

Simultaneous test results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	352,657	3	117,552	28,714	0,000b
	Residual	804,363	196	4,104		
	Total	1157,020	199			

a. Predictor: (Constant), Innovation capability, Network capability
b. Dependent Variable: Kowledge creation

Source: SPSS Output Appendix (2021)

Based on the ANOVA test, the calculated F value is 28.714 with a significant value of 0.000. From the calculation of the F table, namely at the level of = 0.05, df1 = k – 1 = 4 – 1 = 3, and df2 = n - k = 200 - 4 = 196, the F table is 2.65. So when compared, F count > F table, which is 22.821 > 2.65, so it can be concluded that network capability and innovation capability simultaneously affect the creation of knowledge for small and medium enterprises (SMEs) in Ciamis city.

Discussion

From the calculation results, it is obtained that the coefficient of determination is 0.724, which means that the influence of the two independent variables on the dependent variable is 72.4%. While 27.6% or the rest is influenced by other variables not examined in this study.

Table 5

Test results Coefficient of determination

Model	R	R Square
1	.815a	.724

Source: Data processed, 2021

The Effect of Network capability on Knowledge creation in SMEs in the city of Ciamis

In this study, responses to questions regarding the ability to build networks were in the agreed category, meaning that the network capabilities that were built could have an impact on the performance of the business itself. It can be seen from the calculation results that the respondents' responses that have been described previously, from each proposed indicator are included in the agree category. Based on the results of partial hypothesis testing or the t-test that has been carried out, it can be concluded that the network capability variable shows that H0 is rejected and H1 is accepted, meaning that it is important for business people, especially SMEs to maintain relationships and expand networks in order to remain competitive in the face of competition[31].

The Influence of Innovation capability on Knowledge creation in SMEs in Ciamis kota

In this study, the response regarding innovation capability is in the very good category. This shows that the ability to innovate is one of the strategies for SME business players, especially in a homogeneous market. Seen from the results of the calculation of respondents' responses that have been described previously, each of the indicators proposed is included in the very good category. Based on the results of partial hypothesis testing or the t-test that has been carried out, it can be concluded

that the innovation capability variable shows that H0 is rejected and H1 is accepted [32].

The influence of network capability and innovation capability on knowledge creation in SMEs in the city of Ciamis.

Based on the results of simultaneous hypothesis testing that has been carried out, it can be concluded that the two independent variables, namely network capability and innovation capability, simultaneously affect knowledge creation. In the ANOVA results, the conclusions that can be obtained indicate that the network capability variable is a variable that has an important influence on the success of SMEs in building competitive advantage. These results also indicate a conformity with [1] that the network is one of the factors in building sustainable business performance.

CONCLUSION

The results of this study reveal that the current growth of SMEs in various countries has experienced a fairly high increase, especially in Indonesia. The rapid growth of SMEs is, of course, accompanied by high competition as well. This requires business people to review the chosen strategy. In this study, the role of network capabilities and innovation has a significant influence in shaping the creation of knowledge for business people in order to survive in the face of competition, especially in the context of today's all-digital business. Many of the SMEs have integrated their business activities into digitization by opening online shops. However, this is still not enough if the organization does not have a wide network. The development of consumer behavior models in online business is a challenge for academics that is highly expected by online marketers. However, the model tested in this study illustrates that in the context of online business, the variables of network capability and innovation are one of the factors in business success. Therefore, suggestions for SME companies or organizations to always maintain and develop networks in order to gain knowledge which is very useful for a sustainable business strategy. As for further researchers, the findings of this study are only limited to two variables, then for future researchers to add other variables either as independent or moderating variables to measure the performance of SMEs, such as marketing intelligence or digital entrepreneurship.

REFERENCE

1. Abbas, K., et al., *Routine childhood immunisation during the COVID-19 pandemic in Africa: a benefit–risk analysis of health benefits versus excess risk of SARS-CoV-2 infection.* The Lancet Global Health, 2020. **8**(10): p. e1264-e1272 DOI: https://doi.org/10.1016/S2214-109X(20)30308-9.
2. Zhang, S., et al., *Deep learning based recommender system: A survey and new perspectives.* ACM Computing Surveys (CSUR), 2019. **52**(1): p. 1-38.
3. Gupta, S., et al., *Factors associated with death in critically ill patients with coronavirus disease 2019 in the US.* JAMA internal medicine, 2020. **180**(11): p. 1436-1447 DOI: https://doi.org/10.1001/jamainternmed.2020.3596.
4. Sarstedt, M., et al., *How to specify, estimate, and validate higher-order constructs in PLS-SEM.* Australasian Marketing Journal (AMJ), 2019. **27**(3): p. 197-211 DOI: https://doi.org/10.1016/j.ausmj.2019.05.003.
5. Schache, A.G., et al., *Evaluation of human papilloma virus diagnostic testing in oropharyngeal squamous cell carcinoma: sensitivity, specificity, and prognostic discrimination.* Clinical Cancer Research, 2011. **17**(19): p. 6262-6271 DOI: https://doi.org/10.1158/1078-0432.CCR-11-0388.
6. Gronum, S., M.L. Verreynne, and T. Kastelle, *The role of networks in small and medium-sized enterprise innovation and firm performance.* Journal of Small Business Management, 2012. **50**(2): p. 257-282 DOI: https://doi.org/10.1111/j.1540-627X.2012.00353.x.
7. Weiler, J.M., et al., *Pathogenesis, prevalence, diagnosis, and management of exercise-induced bronchoconstriction: a practice parameter.* Annals of allergy, asthma & immunology, 2010. **105**(6): p. S1-S47 DOI: https://doi.org/10.1016/j.anai.2010.09.021.

8. Yunis, M., A. Tarhini, and A. Kassar, *The role of ICT and innovation in enhancing organizational performance: The catalysing effect of corporate entrepreneurship.* Journal of Business Research, 2018. **88**: p. 344-356 DOI: https://doi.org/10.1016/j.jbusres.2017.12.030.
9. Scott, G.J. and I. Chaston, *Culture and innovation in Peru from a management perspective.* Journal of Global Initiatives, 2012. **7**(2): p. 131-145 DOI: https://doi.org/10.7835/ccwp-2012-09-0010.
10. Trubek, D.M. and L.G. Trubek, *Hard and soft law in the construction of social Europe: the role of the open method of co-ordination.* European Law Journal, 2005. **11**(3): p. 343-364 DOI: https://doi.org/10.1111/j.1468-0386.2005.00263.x.
11. Ardito, L. and R.M. Dangelico, *Firm environmental performance under scrutiny: The role of strategic and organizational orientations.* Corporate Social Responsibility and Environmental Management, 2018. **25**(4): p. 426-440 DOI: https://doi.org/10.1002/csr.1470.
12. Alkhariji, L., et al., *Synthesising privacy by design knowledge toward explainable internet of things application designing in healthcare.* ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM), 2021. **17**(2s): p. 1-29 DOI: https://doi.org/10.1145/3434186.
13. Cenamor, J., V. Parida, and J. Wincent, *How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity.* Journal of Business Research, 2019. **100**: p. 196-206 DOI: https://doi.org/10.1016/j.jbusres.2019.03.035.
14. Ucbasaran, D., P. Westhead, and M. Wright, *The extent and nature of opportunity identification by experienced entrepreneurs.* Journal of business venturing, 2009. **24**(2): p. 99-115 DOI: https://doi.org/10.1016/j.jbusvent.2008.01.008.
15. De Carolis, D.M., B.E. Litzky, and K.A. Eddleston, *Why networks enhance the progress of new venture creation: The influence of social capital and cognition.* Entrepreneurship theory and practice, 2009. **33**(2): p. 527-545 DOI: https://doi.org/10.1111/j.1540-6520.2009.00302.x.
16. Cortes, J.E., et al., *Randomized comparison of low dose cytarabine with or without glasdegib in patients with newly diagnosed acute myeloid leukemia or high-risk myelodysplastic syndrome.* Leukemia, 2019. **33**(2): p. 379-389 DOI: https://doi.org/10.1038/s41375-018-0312-9.
17. Kapkaeva, N., et al., *Digital platform for maritime port ecosystem: Port of Hamburg case.* Transportation Research Procedia, 2021. **54**: p. 909-917 DOI: https://doi.org/10.1016/j.trpro.2021.02.146.
18. Murray, C.J.L., et al., *Global burden of 87 risk factors in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019.* The Lancet, 2020. **396**(10258): p. 1223-1249 DOI: https://doi.org/10.1016/S0140-6736(20)30752-2.
19. Hughes, L., et al., *Blockchain research, practice and policy: Applications, benefits, limitations, emerging research themes and research agenda.* International Journal of Information Management, 2019. **49**: p. 114-129 DOI: https://doi.org/10.1016/j.ijinfomgt.2019.02.005.
20. Guan, W.-j., et al., *Clinical characteristics of coronavirus disease 2019 in China.* New England journal of medicine, 2020. **382**(18): p. 1708-1720 DOI: https://doi.org/10.1056/NEJMoa2002032.
21. Mohammadian, T., et al., *Synbiotic effects of β-glucan, mannan oligosaccharide and Lactobacillus casei on growth performance, intestine enzymes activities, immune-hematological parameters and immune-related gene expression in common carp, Cyprinus carpio: An experimental infection with Aeromonas hydrophila.* Aquaculture, 2019. **511**: p. 634197 DOI: https://doi.org/10.1016/j.aquaculture.2019.06.011.
22. Suárez-Varela, J., et al., *Routing in optical transport networks with deep reinforcement learning.* Journal of Optical Communications and Networking, 2019. **11**(11): p. 547-558 DOI: https://doi.org/10.1364/JOCN.11.000547.
23. Noori, A., et al., *Towards establishing standard performance metrics for batteries, supercapacitors and beyond.* Chemical Society Reviews, 2019. **48**(5): p. 1272-1341 DOI: https://doi.org/10.1039/C8CS00581H.
24. Varatharaj, A., et al., *Neurological and neuropsychiatric complications of COVID-19 in 153 patients: a UK-wide surveillance study.* The Lancet Psychiatry, 2020. **7**(10): p. 875-882 DOI: https://doi.org/10.1016/S2215-0366(20)30287-X.
25. Maydanova, S. and I. Ilin. *Strategic approach to global company digital transformation.*
26. Carlucci, F.M., et al. *Domain generalization by solving jigsaw puzzles.* DOI: https://doi.org/10.1109/CVPR.2019.00233.
27. Alshanty, A.M. and O.L. Emeagwali, *Market-sensing capability, knowledge creation and innovation: The moderating role of entrepreneurial-orientation.* Journal of Innovation & Knowledge, 2019. **4**(3): p. 171-178 DOI: https://doi.org/10.1016/j.jik.2019.02.002.

28. Ordieres-Meré, J., T. Prieto Remon, and J. Rubio, *Digitalization: An opportunity for contributing to sustainability from knowledge creation.* Sustainability, 2020. **12**(4): p. 1460 DOI: https://doi.org/10.3390/su12041460.
29. Asongu, S.A. and N.M. Odhiambo, *Foreign direct investment, information technology and economic growth dynamics in Sub-Saharan Africa.* Telecommunications Policy, 2020. **44**(1): p. 101838 DOI: https://doi.org/10.1016/j.telpol.2019.101838.
30. Rajapathirana, R.P.J. and Y. Hui, *Relationship between innovation capability, innovation type, and firm performance.* Journal of Innovation & Knowledge, 2018. **3**(1): p. 44-55 DOI: https://doi.org/10.1016/j.jik.2017.06.002.
31. Tolstoy, E., V. Hill, and M. Tosi, *Star-formation histories, abundances, and kinematics of dwarf galaxies in the Local Group.* Annual Review of Astronomy and Astrophysics, 2009. **47**: p. 371-425 DOI: https://doi.org/10.1146/annurev-astro-082708-101650.
32. Roper, S. and J.H. Love, *Knowledge context, learning and innovation: an integrating framework.* Industry and Innovation, 2018. **25**(4): p. 339-364 DOI: https://doi.org/10.1080/13662716.2017.1414744.