

Testing the Relationships Sustainable Competitive Advantage

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Abstract: This study aims to analyze the relationships between knowledge diversity, knowledge creation, innovativeness, and sustainable competitive advantage. The respondents of this study were 200 employees from SMEs in Central Java - Indonesia. Data were obtained using the distribution of questionnaires and analyzed by applying structural equation modeling (SEM) with AMOS 20 software. The results revealed that knowledge diversity and knowledge creation had a relation with innovativeness and sustainable competitive advantage.

Keywords: *knowledge diversity, knowledge creation, innovativeness, sustainable competitive advantage*

1. Introduction

In the midst of uncertainty and a slowdown in the global economy, Indonesia's economic growth relies on stretching domestic consumption. It is evidenced by household consumption in 2018, which accounted for 55.74% of Indonesia's total gross domestic product (GDP). The productivity of MSMEs as the largest business unit in Indonesia becomes the driving force of the real sector, which then drives the pace of the national economy. The contribution of MSMEs to GDP by the end of 2018 reached 60.34%, and the MSMEs share of GDP is targeted by the end of 2020 to contribute to national GDP of 61 percent, and the target by 2024 will increase to 65 percent (Coordinating Ministry for Economic Affairs, 2020). The contribution of MSMEs to exports in 2019 increased to 18 percent from the previous 14 percent in 2018. The national economic growth of 5% was supported by government spending and public consumption, so that, in this case, people's purchasing power must be maintained, and it is where the role of MSMEs is needed. Specifically, in Central Java, the Provincial Government will focus on developing micro, small, and medium enterprises (MSMEs) as one of the strengthening of the regional economy in supporting economic growth of 7%; due to the potential of MSMEs in each Regency in Central Java, the government continues to encourage its growth.

However, the penetration of batik textiles from China in the batik industry in Indonesia cannot be underestimated. Local batik entrepreneurs and artisans are demanded to be able to innovate so as not to be not eliminated. Currently, batik from Central Java must be able to compete with batik printing from China, which is marketed at very low prices. Written and semi-printed batik are only in demand by the capable people and collectors. Whereas, for the use of school uniforms, there are still many who use batik textiles because of price reasons. IN

this case, batik artisans must be able to innovate in terms of marketing, products, and quality so as not to be knocked out by batik textile products.

Further, artisans must be able to diversify the model and style of batik in Central Java so that it is not monotonous. Digital marketing can be one of the solutions, but Micro, Small, and Medium Enterprises (MSME) entrepreneurs in 35 districts of Central Java city are known to have very little technological knowledge so that their products are difficult to sell through online networks. Of a total of 3,776,843 MSME actors, only two percent can use digital technology, so this is a formidable task faced by the Central Java Province government in the 4.0 era (Central Java UMKM Dinkop, 2020). The number of MSMEs in Central Java in 2019 was 354,884, 39 thousand medium entrepreneurs, and 3,358 large class entrepreneurs. Of the number of SMEs, digital marketing problems are still a big hole that must be corrected immediately by the government. It is due to age background factors and differences in the educational backgrounds of MSME actors.

SMEs must try to improve their innovation power by producing and selling a new batik product, having more value, or a new process. The creativity of each SMEs is expected to produce ideas that can be used as strategies to deal with existing customers, competitors, and markets. Innovation is not only about new products but can also be in the form of systems that already exist in the company, regarding distribution channels and payment systems. Innovation can be resulted from using the existing knowledge, implying new knowledge, or utilizing the diversification of existing knowledge in HR.

Knowledge creation embodies relatively new recombination of knowledge, increasing the number and variety of combinations formed and the potential for very new solutions (Phelps, 2010). Creativity inspiration usually comes from different stimuli, thinking about the knowledge that is outside the inner circle, and combining different knowledge (Ma, Pang, Chen, Chi, & Li, 2014). The search for new and different ownership of knowledge challenges our cognitive structure, including how we unify separate premises and premise relationships that can lead to new thoughts, insights, and solutions (Caner, Appleyard, Tyler, & Weber, 2019). Therefore, when the gap increases, the knowledge it has can provide more new things, which will improve the quality of newly created knowledge (Bogers, Foss, & Lyngsie, 2018).

Moreover, diverse individual backgrounds increase broader opportunities for learning because it is possible that the information to be obtained is related to the knowledge already possessed (Bogers et al., 2018). Diverse backgrounds also indicate the diversity of knowledge so that it has implications for managing creativity and innovation by combining knowledge cumulatively and repeatedly (Edmondson & Harvey, 2018). Differences in background knowledge allow individuals to identify and integrate valuable external knowledge for the recognized internal innovation process. (Dahlander, O'Mahony, & Gann, 2016) show that individuals who can reach external sources of knowledge tend to innovate more. As knowledge diversity increases, each must make more considerable efforts to recognize, recombine, and integrate knowledge with each other and increase the cost of recombination (Cohen & Levinthal, 1990).

Of the many studies on knowledge diversity, most of them discuss the process of how individuals succeed in having new knowledge from the results of combining, integrating and merging the differences of existing knowledge (Bogers et al., 2018; Cho & Yi, 2018; Edmondson & Harvey, 2018). However, how the process of merging, integrating and combining affect the results of innovation have not been explored (Dahlander et al., 2016). Dahlander et al. (2016) show that assimilation and integration of acknowledgment diversity components lead to information overload and confusion. Information exchange often takes place in tacit terms because it can only be combined and exchanged with others who have the

same level of a shared knowledge base. On the other hand, the knowledge that is too narrow can produce a "competency gap," where new information is ignored, and individual

competencies become locked into their old behavior. Thus, the result is that an excessively high level of inequality creates an exchange problem, where an overload of knowledge components can cause information overload and confusion because of different perceptions that will reduce the quality of newly created knowledge. This study aims to analyze how the differences in the knowledge possessed by team members will enhance the creation of new knowledge, which in turn, can ultimately improve innovativeness in the Muslim industry and sustainable competitive advantage.

2. Literature Review

2.1 Sustainable Competitive Advantage

Sustainable competitive advantage is an advantage of the ability of a company's characteristics and resources compared to other companies in the same industry or market (Chen, 2019). The sustainable competitive advantage arises from generic strategies, which are a fundamental way for companies to achieve above-average profitability on an ongoing basis (Ogunkoya, 2018).

Sustainable competitive advantage shows the efforts made by a company in the long term that can maintain the position of competitive advantage in an industry (Ribeiro, Soares, Abranches, & Ziviani, 2018). Sustainable competitive advantage can be concluded as an attempt by a company to maintain a long-term competitive advantage. Indicators that can be applied to produce sustainable competitive advantage according to (Cohen & Levinthal, 1990) are value, awareness, inability to be imitated, and non-substitution.

2.2 Knowledge Diversity

Knowledge diversity is the level of skill, functional, and experience differences in a team's knowledge position (Hambrick, Cho, & Chen, 1996). Knowledge diversity includes teams with various contacts, skills, information, and experience, which are matched by partners in social exchange relationships (Harrison & Klein, 2007). Knowledge diversity reflects the breadth of different technical skills and perspectives (Hambrick, 2007; Ma et al., 2014). Stirling (2007) shows that diversity includes three things: 'variety,' 'balance,' and 'disparity.' Variety is the number of categories in which system elements are divided proportionally. Balance is a function of the pattern of appreciation of elements across categories. Disparity refers to the way and level at which elements can be distributed. The substance, pattern, operationalization, and consequences that may arise from these three things are very different (Harrison & Klein, 2007; Stirling, 2007).

Different organizations have different knowledge. Within a team, there is some overlap between several scientific disciplines, such as management and economics, and it raises the difference of knowledge. When the disparity between partners in a team increases, the organization must spend more considerable effort to recognize, recombine, and integrate knowledge with each other, thereby increasing the cost of recombination (Ma et al., 2014). Tacit knowledge exchange can often only be combined and exchanged with others who have the same level of a shared knowledge base (Salunke, Weerawardena, & McColl-Kennedy, 2019).

Knowledge diversity possessed by team members will lead to the creation of new knowledge (Ma et al., 2014). Differences in ownership of expertise, functional, and experience in knowledge positions, commonly called knowledge diversity, give rise to social interaction and shared experience among members of the organization, which finally creates a new knowledge creation (Cho & Yi, 2018). Thus,

H1: Knowledge diversity influences knowledge creation

High knowledge diversity will stimulate ideas and the critical power of organizational members to increase innovation power (Salunke et al., 2019). Knowledge diversity can increase the power of innovation in HR that appears in new ideas, new solutions, creativity in overcoming problems and creating products and services (Dahlander et al., 2016; Suhana, Udin, Suharnomo, & Mas'ud, 2019; Wahyudi, Udin, Yuniawan, & Rahardja, 2019). Thus,
H2: Knowledge diversity influences innovativeness

2.3 Knowledge Creation

Knowledge creation is more a function of cognitive work that involves not only behavior but also physicality in recombining knowledge. Many new knowledge and solutions are offered from the results of this knowledge recombination. Knowledge creation involves finding elements of existing knowledge, problems, or solutions, and reconfiguring elements of knowledge that lead to the creation of new knowledge. Knowledge creation makes new combinations gradually or radically. Knowledge creation is generating new insights, new ideas, or new routines (Cho & Yi, 2018).

Knowledge creation is described as an interaction between tacit and explicit knowledge that continues to develop like a spiral (Nonaka & Toyama, 2015). The four types of 'modes' in knowledge creation are 'socialization,' 'externalization,' 'internalization,' and 'combination' (Nonaka & Toyama, 2015). Socialization refers to the process of converting tacit knowledge into new tacit knowledge through social interaction and sharing experiences among members of the organization. The combination is the process of combining, categorizing, re-classifying, re-synthesizing existing explicit knowledge to create new explicit knowledge. Externalization is a change of inventory knowledge into new explicit knowledge. Internalization refers to the creation of new tacit knowledge that comes from explicit knowledge.

Knowledge creation allows innovation to be realized with the emergence of new ideas, new solutions, creativity in overcoming problems, and creating products and services (Lopez-Perez, Ramirez-Correa, & Grandon, 2019). Higher knowledge creation causes companies to become more innovative (Spanò, Allini, Maffei, & Zampella, 2019). Knowledge creation is generally considered to use strategies to experience innovation and improve organizational operations (Alshanty & Emeagwali, 2019).

Knowledge creation generated from diverse knowledge has implications for making HR a strategic asset in achieving sustainable competitive advantage (Doyle, McGovern, McCarthy, & Perez-Alaniz, 2019). Knowledge creation has been found to be an enabler in achieving sustainable competitive advantage (Quartey, 2019; Sulistiyani, Udin, & Rahardja, 2018). Thus,
H3: Knowledge creation influences sustainable competitive advantage

2.4 Innovativeness

Innovativeness is the extent to which individuals can adopt new ideas (Albert, 2019). Innovativeness is a source for sustainable competitive advantage. Innovativeness is one's ability to assemble concepts, ideas, and novelty obtained from observations, combining knowledge and experience (Lopez-Perez et al., 2019). Innovativeness is the ability of an organization to create something new, implement new products and processes, respond to changes, and want to meet new challenges (Phelps, 2010) and to adapt new ideas to suit current conditions (Nguyen & Nguyen, 2011). The characteristics of innovation are new, distinctive, purposeful, and planned (Spanò et al., 2019), so it can be concluded that innovativeness is the ability to bring the creation of something new, implement new products and processes, respond to changes, and want to meet new challenges. A concept, idea, or theory is an innovation if it has

its characteristics that are not owned or exist in the concept or idea that already existed before. The second characteristic of innovation is new. Every innovation must be an idea or even a new

idea that has never been revealed or published before. Innovations that are found are basically activities that have been planned from the beginning. Innovation is a planned activity to develop particular objects (Spanò et al., 2019).

Innovativeness is a multidimensional construct (Martínez-Román, Tamayo, Gamero, & Romero, 2015). Lynch, Walsh, and Harrington (2010) show five dimensions of innovation: creativity, dexterity for new ideas, intention to innovate, willingness to take risks, and technological capacity to innovate. Innovativeness is measured by indicators of assimilation, differentiation, inversion, and integration (Gallouj, 2015). Albert (2019) states that innovativeness and sustainable competitive advantage are closely related; innovation can improve sustainable competitive advantage (Litungkangas *et al.*, 2019), and that the strength of a company's innovation is a factor that determines its ability to design strategies and sustainable competitive advantage (Doyle et al., 2019). Thus,

H4: Innovativeness influences sustainable competitive advantage

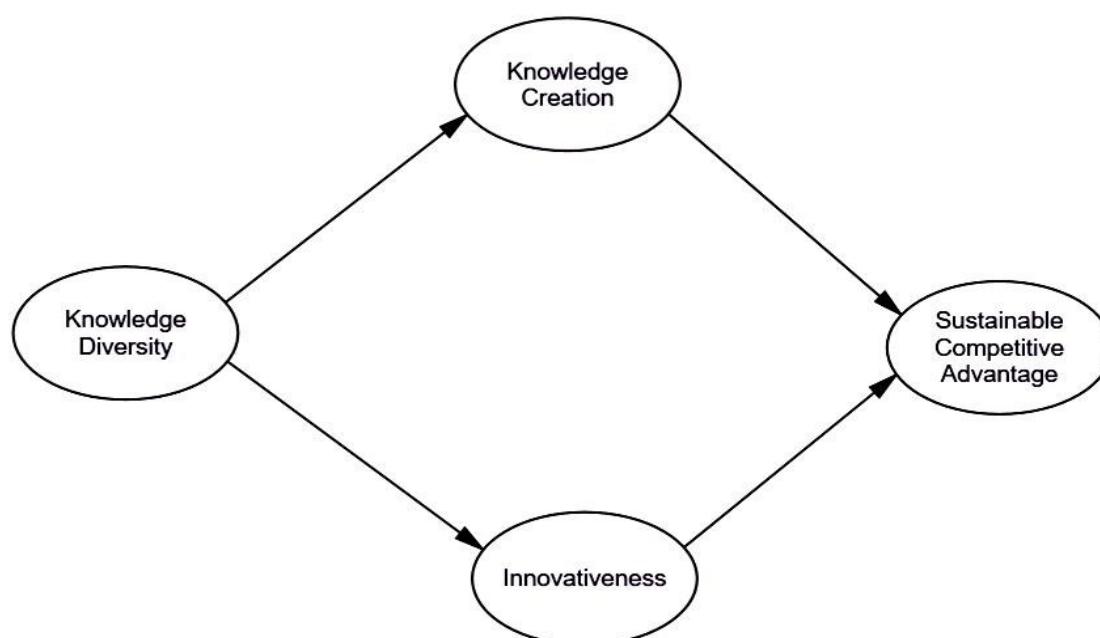


Figure 1. Research Framework

3. Methodology

Tjiptono (2001) suggests that the population refers to a collection of subjects or objects that have similarities in one or many things and produce a problem in research. In this study, the population was 200 Batik MSMEs' actors in Central Java. Data collection techniques were used to collect primary data. The data collection method used documentation techniques. Determination of the score of respondents' answers for primary data was done using a scale in intervals 1-5. The reason for using 1-5 was based on the 1-5 Linkert scale, by giving space for respondents to give answers on the middle value.

The data analysis method used in this study was a quantitative analysis method, where the quantitative data analysis method was a method of analysis in the form of numbers and calculations using statistical methods. To simplify the analysis process, the structural equation model (SEM) based AMOS program would be used.

According to Ferdinand (2014), seven steps must be taken when using SEM, namely:
(1) Development of a theory-based model, (2) Development of flowcharts to show causality,

(3) Conversion of flowcharts in a series of structural equations and model specifications measurement, (4) Selection of the input matrix and estimation techniques for the model built, (5) Assessing the identification problem, (6) Evaluating the Goodness-of-fit criteria, and (7) Interpretation and modification of the model.

4. Results

Table 1. Normality Testing

Variable	min	max	skew	c.r.	kurtosis	c.r.
x14	1.000	5.000	.043	.213	-.182	-.455
x15	1.000	5.000	-.128	-.639	-.294	-.735
x16	1.000	5.000	-.128	-.642	-.001	-.002
x8	1.000	5.000	-.424	-2.119	-.051	-.128
x7	1.000	5.000	-.345	-1.727	.053	.133
x6	2.000	5.000	-.016	-.079	-.882	-2.206
x5	1.000	5.000	.370	1.849	-.007	-.018
x12	1.000	5.000	-.027	-.133	-.463	-1.157
x11	1.000	5.000	-.043	-.214	-.458	-1.145
x10	1.000	5.000	-.079	-.394	-.579	-1.447
x4	1.000	5.000	-.155	-.776	-.792	-1.981
x3	1.000	5.000	.227	1.137	-.340	-.850
x2	1.000	5.000	-.334	-1.670	-.421	-1.053
x1	2.000	5.000	.308	1.539	-.363	-.907
Multivariate					1.441	.417

Based on Table 1, the research data used has fulfilled the data normality requirements, or it can be said that the research data has been normally distributed.

Table 2. Fit Indices

Goodness of Fit Indices	Cut-off Value	Results	Conclusion
Chi – Square	< 91.670 df 71	79.695	Good
Probability	0.05	0.224	Good
RMSEA	0.08	0.029	Good
GFI	0.90	0.931	Good
AGFI	0.90	0.898	Marginal
CMIN/df	≤2.00	1.122	Good
TLI	0.95	0.982	Good
CFI	0.95	0.986	Good

Chi-square is the most basic measure that shows the suitability of the overall model. If the Chi-Square value produces a significant probability, it will show that the sample covariance matrix from the model covariance matrix does not differ significantly (Ghozali, 2016), and for structural Chi-Square equation model, the value is significant, if the probability > 0.05. The use of Chi-Square is only suitable for use in sample studies totaling 100-200, and if the sample size

is outside the sample size range, the significance test becomes less reliable (Ferdinand, 2014). In this study, based on Table 2, the Chi-Square value obtained at 79.695 with a probability of 0.224, so it can be said that the structural equation model was well developed.

The level of probability of significance is a fundamental statistical measure in determining whether H_0 can be rejected. In the analysis using structural equation modeling approaches, it is expected that H_0 is not rejected, in contrast to hypothesis testing in general. A good model should not reject H_0 . Thus, the importance of the expected probability is higher than 0.05 or 0.10 so as not to reject H_0 . If the results are like this, the research data yields a significant probability of 0.224.

The goodness of Fit Index (GFI) is a non-statistical measure that reflects the accuracy of the model obtained from the prediction of the squared residual model compared to the actual data, which has a range from 0 to 1, and getting closer to 1 indicates the model is improving. In this study, the boundary value for expressing the GFI fit model was ≥ 0.90 , and the GFI value between 0.8 and 0.9 was said to be a marginal fit. The GFI value in this study was 0.911, so the model can be considered good. Adjusted Goodness of Fit (AGFI) Index is the development of GFI adjusted to the level of freedom for the proposed model. The model is said to be fitting if the AGFI value ≥ 0.90 and the AGFI value between 0.8 - 0.9 are said to be marginal matches. In this study, the AGFI value was 0.898, so the structural equation model tested was said to be marginally suitable. The CFI value of 0.986 was above the value of 0.95, which was the required CFI value, so it could be that the standard CFI condition was a good value. Furthermore, the TLI value of 0.982 was more than 0.90, which was the value needed by TLI; it means a good standard TLI value. Then, the RMSEA value was 0.029 below 0.08, which was the required RMSEA value, so the standard RMSEA value was good.

Table 3. Hypotheses Testing

Hypotheses	Estimate	SE	CR	P
Knowledge Diversity → Knowledge Creation	.047	.122	1.982	.029
Knowledge Diversity → Innovativeness	.092	.110	1.991	.003
Knowledge Creation → SCA	.175	.140	2.248	.012
Innovativeness → SCA	.189	.155	2.251	.030

The estimated parameter for testing the effect of knowledge diversity on knowledge creation showed a CR value of 1.982, with a probability of 0.029. It is known that the value met the requirements for H_1 to be accepted, namely a CR value of 1.982, which was higher than 1.96, and a probability of 0.029 that was smaller than 0.05. Also, the effect of knowledge diversity on innovativeness showed a CR value of 1.991 and with a probability of 0.003. Both values obtained were eligible for H_2 acceptance. From these results, it could be concluded that there was a positive influence between knowledge diversity on innovativeness. As for testing the effect of knowledge creation on sustainable competitive advantage (SCA), it showed a CR value of 2.248 and with a probability of 0.012. Both values were obtained to meet the requirements for H_3 acceptance, namely CR value of 2.248, which was higher than 1.96, and a probability of 0.012, which was less than 0.05. It in line with that testing the effect of knowledge creation on SCA. Then, Innovativeness testing on SCA (H_4) showed a CR value of 2.251, and with a probability of 0.030. Both of them were qualified for the acceptance of the hypothesis so that it can be concluded to have a positive effect.

5. Discussion

This study revealed that knowledge diversity had a positive influence on knowledge creation. These results are in accordance with the research of Ma et al. (2014) that knowledge diversity

possessed by team members will lead to the creation of new knowledge. The current research showed that all dimensions of knowledge diversity were directly related to knowledge

creation. It is where these business actors have the expertise, functional, and experience in knowledge positions that can bring social interaction and sharing experiences among members of the organization, who ultimately create a new knowledge creation.

Besides, knowledge diversity had a positive influence on innovativeness. It is consistent with the research of (Salunke et al., 2019) that high knowledge diversity will stimulate ideas and critical power of organizational members to increase the power of innovation. The present research on this hypothesis explained that knowledge diversity could increase the power of HR innovation that appeared in new ideas, new solutions, creativity in problem-solving, and the creation of products and services.

Moreover, knowledge creation had a positive influence on sustainable competitive advantage. It is consistent with the research of Spanò et al. (2019) that higher knowledge creation causes companies to be more innovative, so that knowledge creation is generally considered to use strategies to experience innovation and improve organizational operations. Knowledge creation allows innovation to be realized with the emergence of new ideas, new solutions, creativity in overcoming problems, and creating products and services.

At last, innovativeness had a positive influence on sustainable competitive advantage. It is consistent with research conducted by Doyle et al. (2019) that the strength of a company's innovation is a factor that determines its ability to design strategies and sustainable competitive advantage. This research produced positive effects because the dimension of innovativeness could create something new, implement new products and processes, respond to changes, and want to meet new challenges.

6. Conclusion

This study contributed in three ways, namely, contributing to the understanding of the process of creating knowledge gained from the diversity of knowledge possessed by the organization. Second, this research built a deeper understanding of the role of diversity of knowledge and knowledge creation in increasing the power of innovation and sustainable competitive advantage. Third, this article constructed a deeper understanding of the role of innovation in achieving sustainable competitive advantage. The creation of new knowledge involves elements of knowledge inherent in individuals, making combinations of new knowledge by combining existing knowledge, or discovering new elements, so that it can be used as intellectual property in organizations that act as corporate strategic assets. This research showed that differences in existing knowledge in organizations could be created into new knowledge in organizations that ultimately played a role in increasing the innovation power of the Muslim clothing industry and potentially achieving sustainable competitive advantage.

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