The Effect of Knowledge Sharing Relationship with Network Capability on Competitive Advantage in Mediating Product Innovation of Indonesian Small Medium Enterprises

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Abstract:
Research on SMEs in the world, especially in Indonesia, is very interesting to conduct. It is because there is increasing business competition and is influenced by technological developments, so it has an impact on SMEs, which are increasingly active in issuing a product. Furthermore, in Indonesia, there has been an increase in the number of SME businesses which has led to the emergence of various variations and business competition, making it interesting to study. This research aimed to investigate the overall effect of the four variables (knowledge sharing and network capability on competitive advantage through product innovation) both directly and indirectly. Data were collected from 201 business people in Indonesia as a sample selected using a purposive sampling technique, while the analysis technique used was SEM AMOS 26. The main findings in this study were that knowledge sharing and network capability had a positive and significant effect on the competitive advantage of SMEs in Indonesia.

Keywords: Competitive Advantage, Knowledge Sharing, Network Capability, Product Innovation.

1. Introduction
Small businesses play a vital role in a country's economy, including Indonesia. Small business is a determining factor for most of the world economy (Storey, 2002). The role of small and medium enterprises (SMEs) in the Indonesian economy can be seen from economic activities in various sectors; the most extensive job provider; development of local economic activities and community empowerment; creators of new markets and sources of product innovation; and its contribution in maintaining the balance of payments through export activities. In 2016, there were 61.7 million SMEs in Indonesia, and with the number continuing to increase until 2021, the number of SMEs reached 64.2 million. At this time, SMEs are one of the businesses that are quite much in demand by various groups. Therefore, product innovation among SME businesses is a significant factor in business continuity.

Innovation is crucial to improve performance (Eshlaghy & Maatofi, 2011; Eris & Ozmen, 2012). However, other studies explain that innovation does not support marketing performance (Mavondo, Chimhanzi & Stewart, 2005; Salavou & Avlonitis, 2008). Based on the two differences in the results of these studies, there is still a research gap in assessing the importance of the role of innovation in improving company performance, which requires further research.

Knowledge-sharing activity is one of the competitive advantages companies must have (Nonaka, 1991; Spender & Grant, 1996; Cabrera, Collins & Salgado, 2006; Abdul-Jalal, Toulson & Tweed, 2013; Nwaiwu et al., 2020; Usman, Hartani & Sroka, 2020). Therefore, to create innovation in SMEs, sharing knowledge is necessary because sharing information impacts innovation and business performance (Rao, Guo & Chen, 2015).

The ability to create networks and build relationships is an important part of an organization. The role and importance of inter-organizational relations in competitive advantage and company performance have received increasing attention over the past two decades (Ngugi & Johnsen, 2010). Companies' ability to build networks affects their ability to access scarce resources needed to pursue opportunities (Aldrich & Carter, 2004).

Based on this background, this study aims to examine the mediating effect of product innovation on the relationship between knowledge sharing and network capability on competitive advantage. This study uses...
several previous studies as references, such as the relationship between knowledge management and product innovation (Aggestam, 2006; Herry et al., 2007; Suliyanto, 2011; Yulianto, 2013; Gusty, 2014). The mediating effect of product innovation on the relationship between knowledge sharing and network capability is an important variable to study. This paper examines the mediating effect of product innovation on the relationship between knowledge sharing and network capability in SMEs in Indonesia.

2. Literature review

(1) Knowledge Sharing

Knowledge sharing refers to providing information and knowledge to assist others. It is helpful in the context of collaboration for solving problems, developing new ideas, or implementing policies or procedures (Cummings, 2004). Sharing knowledge is a process by which individuals exchange knowledge and create new knowledge together (Van den Hooff & De Ridder, 2004). Within an organization, one way to share knowledge is by sharing work experiences, skills, knowledge, and contextual information among employees (Lin, 2007).

(2) Network Capability

Network capability is a company's ability to initiate, develop, and utilize internal organizational and external inter-organizational relations (Zacca, Dayan & Ahrens, 2015). Network capability is a company's ability to initiate relationships with other companies and the benefits of these relationships (Balboni, Bortoluzzi, & Vianelli, 2014).

(3) Product Innovation

Innovation affects a company's success and performance (Ardyan, 2016). New products have different levels of innovation. Innovation is the process of creating new products, markets, technologies, organizations, or a combination of these (Boer & During, 2001). Innovation activities must create something new for the target audience to attract customers (Husein & Nuryakin, 2018). Various studies on the level of innovation describe several types, including radical, incremental, and moderate innovation or entirely new products (Garcia & Calantone, 2002; Herrmann, Gassmann & Eisert, 2007; Janssen, Stoopendaal & Putters, 2015; Souto, 2015; Un, 2010; Utterback & Abernathy, 1975).

(4) Competitive Advantage

Competitive advantage is the extent to which an organization can create a position that can sustain the market as long as competitors remain. Companies make a competitive advantage through competitive capabilities or priorities, defined as strategic preferences or dimensions in which companies choose to compete in targeted markets (Russell & Millar, 2014).

Continuous innovation in a company is a basic need that, in turn, will result in the creation of a competitive advantage, and the company's willingness to develop innovation has an impact on the company's ability to face competition (Yulianto, 2013; Gusty, 2014; Suliyanto, 2011).

3. Theoretical basis

Collecting and sharing knowledge are two fundamental concepts that affect the innovation ability of companies (Lin, 2007). The process of sharing knowledge affects the innovation ability of companies (Yeşil et al., 2013). Sharing knowledge forms new information and increases competitive advantage through several activities, such as sharing experiences, exchanging ideas, and practicing (Connell & Voola, 2013; Lin & Chen, 2008; Ayanbode, 2020).

Companies attempt to establish relationships with other companies in a network to gain access to their required assets (Kogut & Zander, 1992). These assets can include tools, capabilities, resources, and so on. The combination of these assets is likely to affect the company's creativity. Creativity can influence the increase in innovation within the company. Building a network means having better access to information and being in a stronger position to influence and benefit from network activities (Chiu, 2009), where one of the benefits is generating creative ideas. Building links or networks with partners around allows companies to obtain more information from the environment, which is a critical element for innovation success (Ritter & Gemunden, 2003).

Focusing on innovation has a positive impact on competitive advantage (Nuryakin, 2018). High innovation levels, including process and product innovation, will improve the company's ability to create high-quality products. High product quality will increase the company's competitive advantage, which will
eventually have an impact on company performance (Hartini, 2012). Innovation is no guarantee of success; it must be balanced with the company's core competencies and overall strategy to succeed. Many technological innovations, for example, can be replicated by other companies and erode competitive advantage. However, despite the risks, innovation remains one of the most important ways to achieve competitive advantage (Dustin, Bharat, & Jitendra, 2014).

4. Analysis

(1) Measurements
In this study, data was determined using a questionnaire with a Likert scale in the study of five points (1 = strongly disagree, 5 = strongly agree). The Knowledge Sharing variable was measured using eight items from 4 indicators: socialization, externalization, combination, and internalization (Ayanbode, 2020; Berraies, 2019; Boroujerdi et al., 2019; Julpisit, 2019; Magnier Watanabe & Senoo, 2009). The Network Capability variable was measured using six items from 3 indicators (network characteristics, network operations, and network resources) (Ajayi, 2016; Papastamatelou et al., 2016). The Product Innovation variable was measured using six items from 3 indicators (line extensions, me too product, new to the world) by (Lukas & Ferrell, 2000). And the Competitive Advantage variable was measured using six items from 3 indicators (product uniqueness, product quality, and competitive price) by (Droge, Cornelia & Shownee Vickery, 1994). Demographic information was collected, namely: gender, age, domicile, how long have been running SME business activities, and turnover in a month.

(2) Sampling and Data Collection
In this study, 201 respondents were used as samples. The sampling technique was purposive sampling, with the following criteria: minimum business capital of 10 million, sales turnover of more than 300 million per year, and more than ten employees. SMEs were chosen as the research objects because more and more Indonesian people are already running SME business activities.

(3) Data Analysis
This study was analyzed using the Structural Equation Modeling (SEM) method through AMOS 26. Utilizing SEM, three types of analysis activities could be carried out simultaneously. These analysis activities included testing the model of the relationship between variables associated with the measurement model, obtaining a model suitable for predictions relating to structural model analysis, and checking the validity and reliability of instruments related to confirmatory factor analysis. The overall model fit was measured using chi-square ($\chi^2$), root mean square residual (RMR), goodness of fit index (GFI), Tucker Lewis Index (TLI), Incremental Fit Index (IFI), Comparative Fit Index (CFI), and Normed Fit Index (NFI). Furthermore, SEM analysis aimed to determine whether the research hypothesis was accepted or rejected. SEM analysis displays the t-score value for each coefficient. The hypothesis can be stated to be influential if the t-score value is t-table (1.96) with a significance level (generally = 0.05). Meanwhile, the indirect effect of the mediating variable is determined by carrying out the Sobel test.

(4) Measurement and Structural Models
Results related to validity and reliability tests and goodness of fit can be presented as follows:
Table 2. Measurement Model Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
<th>Item</th>
<th>SLF</th>
<th>AVE</th>
<th>CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Sharing</td>
<td>Socialization</td>
<td>KS1</td>
<td>0.888</td>
<td>0.889799</td>
<td>0.984807</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KS2</td>
<td>0.931</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Externalization</td>
<td>KS3</td>
<td>0.94</td>
<td>0.941</td>
<td>0.951</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KS4</td>
<td>0.951</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combination</td>
<td>KS5</td>
<td>0.965</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>KS6</td>
<td>0.952</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Internalization</td>
<td>KS7</td>
<td>0.966</td>
<td>0.966</td>
<td>0.951</td>
</tr>
<tr>
<td></td>
<td></td>
<td>KS8</td>
<td>0.951</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Network Capability</td>
<td>Network Characteristics</td>
<td>NC1</td>
<td>0.797</td>
<td>0.710908</td>
<td>0.952457</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NC2</td>
<td>0.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network Operations</td>
<td>NC3</td>
<td>0.851</td>
<td>0.851</td>
<td>0.899</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NC4</td>
<td>0.899</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Network Resources</td>
<td>NC5</td>
<td>0.899</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NC6</td>
<td>0.806</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product Innovation</td>
<td>Line Extensions</td>
<td>PI1</td>
<td>0.799</td>
<td>0.515551</td>
<td>0.900603</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PI2</td>
<td>0.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Me too Product</td>
<td>PI3</td>
<td>0.646</td>
<td>0.646</td>
<td>0.634</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PI4</td>
<td>0.634</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>New to the World</td>
<td>PI5</td>
<td>0.748</td>
<td>0.748</td>
<td>0.727</td>
</tr>
<tr>
<td></td>
<td>Product Uniqueness</td>
<td>CA1</td>
<td>0.631</td>
<td>0.646213</td>
<td>0.941107</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA2</td>
<td>0.804</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Product Quality</td>
<td>CA3</td>
<td>0.883</td>
<td>0.883</td>
<td>0.872</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA4</td>
<td>0.872</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Price</td>
<td>CA5</td>
<td>0.83</td>
<td>0.83</td>
<td>0.777</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CA6</td>
<td>0.777</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Based on Table 2, the loading factor value of all items in the entire model was above 0.50. It means that items consisting of knowledge sharing (socialization, externalization, combination, internalization), network capability (network characteristics, network operations, network resources), product innovation (line extensions, me too product, new to the world) and competitive advantage (product uniqueness, product quality, competitive price) were considered valid and believed to be able to measure the complete model construct.

Table 3. The goodness of Fit Index

<table>
<thead>
<tr>
<th>The goodness of Fit Index</th>
<th>Cut off Value</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\chi^2$</td>
<td>Expected to be low</td>
<td>748.606</td>
</tr>
<tr>
<td>Df</td>
<td>294</td>
<td></td>
</tr>
<tr>
<td>$\chi^2$ - Significance Probability</td>
<td>≥ 0.05</td>
<td>0.000</td>
</tr>
<tr>
<td>CMIN/DF</td>
<td>≤ 3.00</td>
<td>2.546</td>
</tr>
<tr>
<td>RMR</td>
<td>&lt; 0.05</td>
<td>0.152</td>
</tr>
<tr>
<td>NFI</td>
<td>≥ 0.90</td>
<td>0.880</td>
</tr>
<tr>
<td>IFI</td>
<td>≥ 0.90</td>
<td>0.924</td>
</tr>
<tr>
<td>TLI</td>
<td>≥ 0.90</td>
<td>0.915</td>
</tr>
<tr>
<td>CFI</td>
<td>≥ 0.90</td>
<td>0.923</td>
</tr>
</tbody>
</table>

The model fit requirements could be accepted based on the goodness of fit (GOF) measurement results in Table 3. The table also shows that there were four measurements that indicated a good degree of fit. CMIN/DF value = 2.546 (≤ 3.00) met the criteria. IFI = 0.924, TLI = 0.915, and CFI = 0.923; all were above 0.90 and were sufficient to state that a model was fit and appropriate.
(5) Hypothesis Testing

![Fig 1: Full Model Structural Test](image)

Based on figure 1, table 4, the t-score of knowledge sharing on product innovation was 3.432, which was greater than the t-table value (1.96). Similarly, the p-value was less than 0.001, less than 0.05 ($\alpha = 0.05$). This result was related to H1, where knowledge sharing positively and significantly affected product innovation. In H2, the t-score of knowledge sharing on competitive advantage was 2.587, greater than the t-table (1.96) and a p-value of 0.010; less than 0.05 ($\alpha = 0.05$). It proved that knowledge sharing positively and significantly affected competitive advantage. In H4, the t-score network capability value on product innovation was 9.610; greater than the t-table value (1.96) and p-value less than 0.001; less than 0.05 ($\alpha = 0.05$). Thus, network capability had a positive and significant effect on product innovation. In H5, the t-score value of network capability on competitive advantage was 2.613, greater than the t-table value (1.96) and a p-value of 0.009, less than 0.05 ($\alpha = 0.05$). Thus, network capability had a positive and significant effect on competitive advantage. In H7, the t-score value of product innovation on competitive advantage was 4.022, greater than the t-table value (1.96) and p-value less than 0.001; less than 0.05 ($\alpha = 0.05$). Thus, product innovation had a positive and significant effect on competitive advantage.

<table>
<thead>
<tr>
<th>Table 4. Hypothesis Testing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
</tr>
<tr>
<td>Knowledge Sharing ---\rightarrow Product Innovation</td>
</tr>
<tr>
<td>Network Capability ---\rightarrow Product Innovation</td>
</tr>
<tr>
<td>Network Capability ---\rightarrow Competitive Advantage</td>
</tr>
<tr>
<td>Product Innovation ---\rightarrow Competitive Advantage</td>
</tr>
<tr>
<td>Knowledge Sharing ---\rightarrow Competitive Advantage</td>
</tr>
</tbody>
</table>
Based on the results of The Sobel test in Table 5, it was obtained the H3 Sobel test statistic value of 2.612, a p-value of 0.004. These results indicated that the statistic value of the Sobel test is greater than the t-table (1.96). Likewise, the p-value obtained was less than 0.05 (α = 0.05). It demonstrates an indirect effect of Knowledge Sharing on Competitive Advantage through Product Innovation. The corresponding results were also obtained for the H6 Sobel test statistic of 3.721, greater than 1.96, and a p-value of 0.000, less than 0.05 (α = 0.05). Thus, there is an indirect effect of Network Capability on Competitive Advantage through Product Innovation.

5. Discussion

This study aims to investigate the relationship of variables with each other by creating a new model in the relationship of knowledge sharing, network capabilities, and product innovation to competitive advantage. Knowledge Sharing has a positive and significant influence on Product Innovation. Informative knowledge can provide new information that is useful for developing a new product idea in the SME business. This study's results align with previous research, which concludes that knowledge sharing, when combined with product innovation and implemented on an ongoing basis, can improve SME business performance (Wang et al., 2012).

Knowledge sharing has a positive and significant influence on competitive advantage. Optimizing knowledge sharing is expected to generate and strengthen problem-solving strategies, ultimately promoting innovation in an SME business. The results of this study are in accordance with previous research, which concludes that knowledge-based assets are the foundation of success and sustainable competitive advantage (Bashir and Farooq, 2019).

Network capability has a positive and significant influence on product innovation. The results of this study support previous research, which concludes that the ability of SME businesses to start and develop businesses and relationships with internal and other SMEs is the foundation for creating new product innovations (Naili Farida and Nuryakin, 2021). Network partners are critical in assisting companies in achieving their strategic goals and are recognized for their role in helping the company's innovation and growth activities (Ahuja, 2000).

Network capability has a positive and significant influence on competitive advantage. The ability of an SME business enterprise to provide knowledge is a viable strategy for achieving excellence. The results of this study are in line with previous studies, which conclude that network capabilities and knowledge imparted in the relationships between employees, customers, suppliers, and others have the potential to achieve viable strategies for innovation (Parida et al., 2009).

Product innovation has a positive and significant influence on competitive advantage. Competitive advantage in SME business ventures will increase with the increasing application of good product innovation. This study's results align with previous research, which concludes that businesses must remain proactive in carrying out sustainable innovations to achieve competitive advantage in similar industries such as SMEs (Wahyono, 2019). Implementing good innovation with small and medium businesses, such as finding new ideas, giving rewards to employees who provide new ideas, and implementing them into reality, will directly increase innovation and significantly reduce product quality and costs, which will ultimately create distinct benefits for the company.

6. Conclusions

(1) Summary
This study shows that knowledge sharing and network capability have a positive and significant effect on competitive advantage through product innovation. In this case, available information is one of the crucial things to developing and solving problems in an SME business. Information owned by SME businessmen can be a process of exchanging ideas and knowledge that can create a new product innovation as a competitive advantage strategy in a targeted market. In addition, to make it easier for SME businessmen to collaborate, it is necessary to have the ability for business people to start and develop a business based on the target market. The results of this study are expected to create more in-depth and comprehensive research on the effect of Knowledge Sharing and Network Capability on Competitive Advantage through Product Innovation. This research specifically investigates the importance of information and cooperation in competitive advantage among business people to develop product innovations that align with developments in SME businesses in Indonesia.

(2) Limitations
This study has several limitations that provide direction for further research. First, the sample size used is only 201 respondents in this study, which may not be sufficient to represent the population, particularly in Indonesia. Therefore, future studies are advised to rely on a larger sample size. Second, this research is limited in scope because it only focuses on SMEs in Indonesia and employs knowledge sharing, network capabilities, and product innovation. Further research can take industry, country, and other variables that can influence product innovation to increase generalizability. For researchers, the results of this study are expected to become literature and references to develop more in-depth and comprehensive research on competitive advantage.

References


