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Improving Sustainability in the Small-Medium Culinary Industry: Analyzing the Role of Open Innovation and Competitive Advantage

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Abstract. In Indonesia, Small and Medium Enterprises (SMEs) have a crucial contribution to improving economic growth and providing business opportunities for society. However, these SMEs had experienced a difficult situation because of the Covid-19 pandemic. The type of SME that is mostly impacted by the pandemic is culinary SMEs. This study then aimed to analyze two important factors that can support and strengthen their business sustainability, namely open innovation and competitive advantage. In examining these variables, the author used a concurrent mixed method that combines quantitative and qualitative data. As for the unit of analysis, we used the owners of culinary SMEs located within 10 large cities in Indonesia with total number of SMEs is 307 units. The data and information were then further analyzed through SmartPLS 3.0 software and Structural Equation Modelling – Partial Least Squares (SEM-PLS) model. This study showed a result that both open innovation and competitive advantage have a significant effect on sustainability. This is supported by the interview result that open innovation can improve business sustainability because it allows culinary SMEs to follow industrial trends, analyze consumer preferences, and utilize digital technology. Furthermore, the interview also resulted that competitive advantage can increase sustainability because culinary SMEs can create unique products and services to differentiate themselves from their competitors. Therefore, this study gives a fundamental contribution by using mixed methods to examine the relationship between open innovation and sustainability as well as competitive advantage and sustainability.

Keywords: sustainability, open innovation, competitive advantage, small-medium enterprises

1. Introduction

In Indonesia, Small and Medium Enterprises (SMEs) have an important role to increase economic growth and give business opportunities for the society. The SMEs' contribution to the country's Growth Domestic Product (GDP) reached 61.7% in 2020, an increase of 1.67 compared with the previous year. This condition provides a real advantage for the SMEs in Indonesia to develop a new business ecosystem that can enhance the economic welfare of the Indonesian people (Fajar, 2023). However, the Covid-19 pandemic has provided some challenges for SMEs, especially culinary SMEs. Based on a survey of more than 3,000 SMEs which are located in 22 Indonesian provinces, the kind of SMEs that mostly impacted by the pandemic is a culinary businesses with dine-in places (Ministry of Cooperatives and SMEs of the Republic of Indonesia, 2020). This is also supported by the data provided by Red Bisnis Asia (2020) that there are 78% of respondents who experienced a decrease in turnover. The most SMEs that are impacted by the pandemic are culinary (43.09%) due to decreased sales, difficulty accessing inputs, and difficulty accessing financing.

Therefore, culinary SMEs need to enhance their sustainability to survive during those difficult times. In this context, business sustainability refers to a condition where a company has a sufficient budget to carry out and develop its business. Sustainability is essential for culinary SMEs to maintain customer base, ensure supply of high-quality ingredients, and implement environmentally friendly practies like waste reduction. If culinary SMEs cannot improve their sustainability, the risk of bankruptcy will be increased. Sustainability is also crucial in market competency because culinary SMEs need continuity in the exchange process as well as engagement with the stakeholders. How culinary SMEs are conducted their business will give an impact on sustainability (Pedersen et al., 2018). They need a comprehensive business model which contains various factors, such as dynamic capabilities (Inigo et al., 2017) and a unique approach (Breuer et al., 2018).

In addition, there are two significant factors to improve SMEs' sustainability, namely open innovation and competitive advantage. Open innovation is a dispersed innovation practice that depends on the flow of knowledge that is monitored across the company's boundaries by using the financial and non-financial instruments that are appropriate to its business model (Chesbrough, 2017). Indeed, the SME's actors must be adapted efficiently to the post-pandemic era by optimizing the role of digital technology through innovation. Transaction in the digital realm is increased, particularly in the pandemic era when people's movement is restricted. However, from the total of 64 million SME actors, there are only 8 million, or 13% that have been connected with the digital realm (Andriani & Maskur, 2020). This problem needs to be overcome by not only improving digital education, curation, and incubation but also enhancing the onboarding capability in the digital platform. Moreover, there are critical success factors that can increase innovation and creativity, such as group diversity, knowledge sharing, participative leadership, and high-level employees' commitment to change (Taleb & Pheniqi, 2023).

Entering the New Normal era, SMEs also should conduct a deeper analysis and evaluation regarding their business to be more sustainable. Competitive advantage is required to be considered so that the SMEs' products or services can be preserved and become consumers' choices in their purchase decision. According to Wingwon (2015), competitive advantage is a set of factors that differentiated the company from its competitors, and thus give the company a unique position in the market to be more excellent than the rest. It can create more economic value, either in operational matters with lower costs or in better benefit achievement, and it is consistent with the theory regarding the impact of quality management practices on business performance (Elshaer & Augustyn, 2016). Thus, competitive advantage can be produced effectively if SMEs successfully build, maintain, and develop their special quality as a result of the operation of strategic assets. These strategic assets have capability to provide a sustainable advantage because it includes resources and competencies resulting from several social interactions that are internalized as a unique social complexity.

This study then tried to address the gap in knowledge in previous work of literatures regarding SMEs' sustainability. By using the SEM-PLS analysis, the authors had examined open innovation and competitive advantage as drivers of sustainability for culinary SMEs. Thus, this study has an objective to explain and analyze the relationship between open innovation and sustainability as well as competitive advantage and sustainability. This is because, as mentioned before, SME actors need to utilize open innovation and competitive advantage to survive in this dynamic and unpredictable world after the Covid-19 pandemic happened. These two variables can play a crucial role to enhance SMEs' sustainability so that their business can be adapted, maintained, and even developed effectively regardless of the new challenges provided by the pandemic. Compared with other research, this study give a fundamental contribution by using mixed methods or a combination of quantitative and qualitative data in examining the relationship between open innovation and sustainability as well as competitive advantage with sustainability. After collecting the data, we then analyzed those further by using the PLS model.

2. Literature Review

2.1. Sustainability

In 1959, Edith Penrose published '*The Theory of the Growth of the Firm*' which give birth to resource-based theory. This theory is closely related to efficiency, profitable growth, economic profit, and competitive advantage. The development of sustainability of the firms then cannot be separated from a resource-based theory that examines five tracks of growth, including (1) sale of resources in factor markets; (2) expansion toward market products; (3) status quo operation; (4) diversification; and (5) cooperation contract on resources with other companies (Penrose, 1959 cited in Kor et al., 2016). Based on this theory, the concept of sustainability contains two main dimensions. The first dimension is time, given that sustainability is associated with what will happen in the future. Meanwhile, the second dimension is the interaction between the environment, natural resources, and economic system (Clayton & Radcliffe, 2018).

Within culinary SMEs, business sustainability can be identified from the success of individuals in conducting innovation, return on initial capital, and employee and customer management (Glinsky et al., 2015). This sustainability needs to be implemented in the current type of business model to ensure the company's resilience (Andi & Utama, 2023). There are also three benchmark dimensions in sustainability or known as tripple bottom line, namely (1) environmental development which refers to the SME's effort to manage its operations so that the product does not harm the environment; (2) economic growth which refers to the SME ability to survive in the market and provide a positive impact to stakeholders' economic condition and local, national, and global system; and (3) social development which refers to the SME management reducing the social imbalance, improving life quality, and strengthening relationships with stakeholders (Elkington, 1994 cited in Correia, 2019).

2.2. Open Innovation

The developing literature regarding the innovation concept showed that there is an idea evaluation through five development steps or generations. The first generation is a linear model approach, in which the innovation process in the company used research and development (R&D) as the technology push. This process has happened consecutively, starting from R&D to the development of new products (Sankaran & Mouly, 2007). The second generation also has a linear approach, but different from the first generation. This is because the innovation sources originated from market pull, thus disregarding the long-term R&D. The third generation is a coupling model approach where the innovation process is a simultaneous integration of R&D and market pull. The study of the fourth generation then discussed the shortage of the previous innovation models which depend on the sequential core innovation. In this generation, the development of new products is conducted by implementing a simultaneous integration between suppliers, R&D, marketing, and producers. Finally, the fifth generation and the newest step of

the innovation process is a network approach which is also called an open innovation (Bahemia et al., 2017). Open innovation is an inverse of the old vertical integration model where internal innovation influences the products and services that are developed internally and sold by the company in the market (Della-Peruta et al., 2016).

According to Naqshbandi & Tabche (2018) and Carrasco-Carvajal & García-Pérez-De-Lema (2021), there are two benchmark dimensions in open innovation. The first dimension is inbound open innovation practices which refer to the procurement of ideas, technology, and knowledge from the external environment, such as cooperation with the government, university collaboration, licensing, and acquisition (Popa et al., 2017). It provides a huge opportunity to culinary SMEs to maintain its sustainability because by implementing open innovation, culinary SMEs can access various ideas and perspectives which can encourage further innovation and creativity in their business. The second dimension is outbound open innovation practice which refers to the transfer of technology, ideas, and technology to external companies and their commercial exploitations through outbound licensing, joint venture, or spin-out business (Leiponen & Helfat, 2010). This is also can increase SMEs' sustainability because the collaboration with external companies can assist culinary SMEs to access specific resources, skills, and technology that are not available internally.

2.3. Competitive Advantage

The key factor for business success is the development of a unique competitive advantage—the advantage in creating value to achieve better profit. Those values comprise friendly customer service and competitive cost leadership (Widagdo & Roz, 2023). Based on the resource-based view theory, competitive advantage can be developed from the possession of tangible and intangible resources that are managed and empowered systematically to produce an advantage within competition through the creation of relevant products and services. In addition, Badriyah (2017) defined competitive advantage as a sustainable advantage, in which the competitors cannot easily imitate the products or services. This is because competitive advantage provides four conditions of sustainable resources, such as (1) the resources are valuable; (2) relatively difficult to develop, thus it becomes an important variable in the competitive environment; (3) very difficult to imitate; and (4) cannot replace significantly. Within the scope of culinary SMEs, competitive advantage refers to the aggregation of various items that differentiated certain SMEs from their competitors, thus it gives a unique and superior position in the market (Udriyah et al., 2019). By keep following the newest food trends, exploring creative taste combinations, and experimenting with new cooking techniques, culinary SMEs then can maintain its sustainability.

Distanont & Khongmalai (2018) then added that competitive advantage has three benchmark dimensions. The first dimension is a price which refers to the company's ability to win over its main competitors regarding lower costs. This includes the ability to provide more competitive and lower cost than the competitors. The second dimension is quality which refers to the company's ability to offer product quality and performance that provide higher value for the customers, such as product completeness based on quality as well as the offering of effective products, long-lasting products, and high-quality products. The third dimension is market responsiveness which refers to the company's ability to react quickly to the change in market demand. The company also can predict and has a vision regarding the change possibility in the future (Bouguerra et al., 2020).

3. Theoretical Framework and Hypotheses

This study examines the relationship between open innovation and sustainability as well as between competitive advantage and sustainability. The conceptual framework then predicts that open innovation and competitive advantage have a significant effect on sustainability. Therefore, this study formulated two research questions:

Q1. Does open innovation have a significant effect on sustainability?

Q2. Does competitive advantage have a significant effect on sustainability?

Collaboration with external partners seems very crucial by referring to social, organizational, and ethical issues in the context of innovation (Arnold, 2017). The high rate of external integration from customers, suppliers, and research agency is the most important competency that allows the company to carry out sustainable innovation (Carrillo-Hermosilla et al., 2010; De Medeiros et al., 2014; Lee & Kim, 2011). However, some partners such as the local community, agents, and NPOscan also can help to increase market revenue on the innovation result (Niinimäki & Hassi, 2011). Besides the notorious collaboration partners, such as universities or customers, sustainable innovation perhaps specifically needs different skills and input as well as need acceptance from wider society. Therefore, it is also reasonable for the company to consider further partners from the company's ecosystem.

Based on the previous open innovation research (Brettel & Cleven, 2011) and stakeholder approach, the long list of groups including customers, suppliers, competitors, experts, universities, agents, communities, public agency, and non-governmental organization have fulfilled requirement as potential collaboration partners to achieve SIP. The previous study reported that collaboration with external partners gives several advantages in product innovation and sustainable services (Arnold, 2017), but the required time and financial investment as well as the risk of an unbalanced investment portfolio need to be considered. Nevertheless, the result of a study conducted by Del Vecchio et al. (2018), Evans et al. (2017), Kennedy et al. (2017), and Ely (2018) showed that open innovation has a positive significant effect on sustainability. This study then proposed a hypothesis as follows:

H1: Open Innovation has a significant effect on sustainability

The rapid dissemination of technology and the digital realm happened in organizational authority within all fields and sectors because the business world has been transformed by the postmodern revolution and the fourth industrial revolution (Akkaya, 2019). In the business environment, competitive advantage becomes a characteristic that can be used by the company to surpass its competitors. Generally, this competitive advantage is based on tangible and intangible resources. Good skills from the employees and a better environment also become a foundation for creating competitive advantage (Ploenhad et al., 2019). However, the newest technology is becoming one of the main competitive advantages. The previous studies also explained the essential relationship between the fourth industrial revolution and competitive advantage (Adamik & Nowicki, 2019; Majeed & Rupasinghe, 2017). This is because technology is a fundamental base of competitive advantage (Mao et al., 2016).

The improvement of competitive advantage then can increase business sustainability (Haseeb et al., 2019). Several studies proved that competitive advantage has a positive role in business performance (Pereira-Moliner et al., 2015; Saeidi et al., 2015) and business performance can increase business sustainability within the company. Indeed, competitive advantage provides strength to the company in surviving the competitive situation. That is why competitive advantage has a crucial role in business sustainability (Cantele & Zardini, 2018). In addition, the result of a study carried out by Huang et al. (2015), Jermsittiparsert (2020), and Cantele & Zardini (2018) showed that competitive advantage has a positive significant effect on sustainability. Based on those statements, this study then proposed a hypothesis as follows:

H2: Competitive Advantage has a significant effect on sustainability

4. Methodology

The method used in this study is a concurrent mixed method by combining quantitative and qualitative data. We then take endogenous variables and exogenous variables as the variables which are examined within this study. On one side, an endogenous variable is an observed and measured variable to examine the effect caused by an exogenous variable. On the other side, an exogenous variable is a stimulus variable or variable that affects other variables (Singh, 2006). This study then used open innovation and

competitive advantage as exogenous variables and used sustainability as an endogenous variable. As for population, we used SME owners within large cities in Indonesia, but we specifically chose the culinary SMEs as a unit of analysis.

This study has chosen 10 cities that represented four densely populated islands, such as Semarang, Surabaya, Bandung, Jakarta, Batam, Pekanbaru, Medan, Palembang, Samarinda, and Makassar. These cities have a huge number of SMEs that is reached 33,514 units. The authors then considered three criteria in taking samples, namely (1) culinary SMEs located in 10 large cities in Indonesia; (2) culinary SMEs that lasted more than three years; and (3) culinary SMEs that fulfilled venture capital and minimal turnover based on the Government Regulation No. 7 of 2021. For Medium-Sized Enterprises, the number of venture capital is IDR 5 billion – IDR 15 billion with a minimal turnover of IDR 15 billion – IDR 50 billion. Meanwhile, for Micro-Sized Enterprises, the number of venture capital is IDR 1 billion – IDR 5 billion with a minimal turnover of IDR 2 billion – IDR 15 billion (Government Regulation No. 7 of 2021, 2021). After that, we used a proportional sampling technique by examining the sample size of each group. Those data are collected through a literature study and field research—namely observation, questionnaire, and interview.

In measuring sustainability, open innovation, and competitive advantage we used several dimensions and indicators as follows:

Table 1. The dimension and indicator of variables

Variable	Dimension	Indicator
Sustainability	Economic growth	1. Increasing profit within the last three years; 2. Increasing assets within the last three years;
	Social development	3. Providing purchase value to all stakeholders, including the owner, investors, staff, and society; 4. Improving staff's prosperity; 5. Social feedback in social media; 6. Loyal customers.
Open Innovation	Inbound open innovation	1. Regularly looking for new ideas from outside; 2. Innovation originated from customers; 3. Innovation originated from employees; 4. Innovation originated from culinary communities; 5. Innovation originated from franchise or recipe purchasing;
	Outbound open innovation	6. Selling recipe or franchise to external parties; 7. Sharing ideas or culinary recipes freely to increase the company's branding.
Competitive Advantage	Price	1. Price that can compete with the competitors; 2. An efficient production process;
	Quality	3. Having a good product and service quality; 4. Having a unique product and service image;
	Response to the market	5. Quickly adapt to the change in society; 6. Can anticipate the culinary trends in the future.

Each variable is measured by a 4-point Likert scale, namely 1 point for very not agree, 2 point for not agree, 3 point for agree, and 4 point for very agree. The data analysis is then conducted by using the SmartPLS 3.0 software and the prediction of the relationship between variables is examined with Structure Equation Modelling – Partial Least Squares (SEM-PLS). By using SEM-PLS, we enable to estimate complex models with many structural paths, indicator variables, and constructs without imposing distributional assumptions on the data (Hair et al., 2019). There are three important aspects for understanding the interplay between data, measurement, and model estimation in SEM-PLS, namely (1) SEM-PLS handles all indicators of formative measurement models as composite indicators; (2)

SEM-PLS parameter can estimate deviate from the prespecified values when the data stem from a common factor model population; and (3) SEM-PLS's use of composites has implications for the method's philosophy of measurement and its area of application(Sarstedt et al., 2020).

In further analysis of the data, we carried out three steps. First, conduct an outer model analysis to ensure that the measurement is reliable and valid. This analysis used four indicators including convergent validity, discriminant validity, composite reliability, and Cronbach's Alpha. Second, using inner model analysis to examine the relationship between latent variables based on the underlying theory. When conducting this model analysis, we started by observing the R-square of each dependent latent variable. The influence of some independent latent variables on the dependent latent variable then can be seen through the changing of the R-square. Third, carrying out hypothesis testing that can be determined from the probability value and t-statistic value. This t-statistic value is 1,96 for alpha 5%. Therefore, Ha is accepted and H0 is rejected if t-statistic > 1,96. In the context of probability value, Ha will be accepted if the p-value < 0,05.

5. Data Analysis and Results

5.1. Descriptive Statistic Analysis

Table 2. Variable average descriptive statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Open Innovation (X1)	307	1,29	4,00	2,9530	,70809
Competitive Advantage (X2)	307	1,00	4,00	2,9463	,78654
Sustainability (Y)	307	1,17	4,00	2,9093	,80509

Based on Table 2, the Open Innovation (X1) on the SME actors has an average value (mean) of 2,9530 with a minimum value of 1,29, maximum value of 4,00, and standard deviation of 0,70809. Meanwhile, the average value of Competitive Advantage (X2) on the SME actors is 2,9463, with a minimum value of 1,00, maximum value of 4,00, and standard deviation of 0,78654. For Sustainability (Y) on the SME actors, the average value is 2,9093, minimum value of 1,17, maximum value of 4,00, and standard deviation of 0,80509.

5.2. Outer Model Analysis

The hypothesis testing can be determined through the PLS analysis result if all indicators meet the requirement of convergent validity, discriminant validity, and composite reliability. The first step is testing convergent validity by examining the loading factor of each indicator against the construct. We then used 0,7 as loading factor limits because this study is confirmatory. Convergent validity was also examined from the Average Variance Extracted (AVE) value of each construct. If each construct has an AVE value > 0,5, then the requirements have been successfully met.

Table 3. Loading factor and AVE value

Variable	Item	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Open Innovation (X1)	X1_1	0,873	0,930	0,944	0,706
	X1_2	0,842			
	X1_3	0,840			
	X1_4	0,839			
	X1_5	0,850			
	X1_6	0,799			
	X1_7	0,835			

Competitive Advantage (X2)	X2_1 X2_2 X2_3 X2_4 X2_5 X2_6	0,868 0,876 0,883 0,857 0,891 0,850	0,937	0,950	0,759
Sustainability (Y)	Y1 Y2 Y3 Y4 Y5 Y6	0,853 0,847 0,881 0,871 0,898 0,885	0,937	0,950	0,761

In Table 3, we can see that the loading factor value of all indicators is > 0,7 and the AVE value of all constructs is > 0,5. Therefore, all indicators of each construct have met the criteria of convergent validity. The second step is discriminant validity testing to ensure that the latent variables have different concepts from each other. If AVE squared value of each exogenous construct is more than a correlation between these constructs and other constructs, then it means that the model has good discriminant validity. We can see the result of discriminant validity testing in Tables 4, 5, and 6.

Table 4. Result of discriminant validity testing with Fornell-Larcker Criterion

Variable	X1	X2	Y
X1	0,840		
X2	0,696	0,871	
Y	0,798	0,734	0,873

Table 5. Result of discriminant validity testing with Cross Loadings

Variable	X1	X2	Y	Statement
X1_1	0,587	0,558	0,636	Valid
X1_2	0,873	0,639	0,709	Valid
X1_3	0,842	0,604	0,679	Valid
X1_4	0,839	0,588	0,654	Valid
X1_5	0,850	0,618	0,692	Valid
X1_6	0,799	0,497	0,592	Valid
X1_7	0,835	0,501	0,618	Valid
X2_1	0,615	0,868	0,711	Valid
X2_2	0,610	0,876	0,685	Valid
X2_3	0,604	0,883	0,685	Valid
X2_4	0,578	0,857	0,633	Valid
X2_5	0,617	0,891	0,692	Valid
X2_6	0,612	0,850	0,654	Valid
Y1	0,701	0,651	0,853	Valid
Y2	0,665	0,624	0,847	Valid
Y3	0,733	0,655	0,881	Valid
Y4	0,682	0,607	0,871	Valid
Y5	0,688	0,633	0,898	Valid
Y6	0,708	0,673	0,885	Valid

Table 6. Result of discriminant validity testing with Heterotrait-Monotrait Ratio (HTMT)

Variable	X1	X2	Y
X1			
X2	0,741		
Y	0,848	0,781	

Table 7. Result of reliability testing

Variable	Cronbach's Alpha	Composite Reliability
Open Innovation (X1)	0,930	0,944
Competitive Advantage (X2)	0,937	0,950
Sustainability (Y)	0,937	0,950

Table 4, 5, and 6 showed that the model has met the criteria required by discriminant validity. This is because the result of discriminant validity testing proved that all constructs have AVE squared value more than the correlation value with other latent constructs. Moreover, the third step is conducting construct reliability testing by examining Cronbach's Alpha value and Composite Reliability value from each construct. The recommended Cronbach's Alpha value and Composite Reliability value are more than 0,7. However, because the developing research used the low limit of loading factor value, then the low value of Cronbach's Alpha and Composite Reliability will be accepted as long as the requirement of convergent validity and discriminant validity has been fulfilled. Moreover, table 7 showed that all constructs have met the requirements of reliability. This is because these have a Composite Reliability value > 0,7 and Cronbach's Alpha > 0,7

5.3. Inner Model Testing (Hypotheses Testing)

In the inner model testing, we examined a direct effect significance test, an indirect effect significance test, and a measurement of each exogenous variable effect on the endogenous variable. The direct effect significance test has the objective to analyze the influence of the exogenous variable on the endogenous variable. We then used the hypotheses as follows:

Ho: Exogenous variable has no significant effect on the endogenous variable

Ha: Exogenous variable has a significant effect on the endogenous variable

In this context, Ha will be accepted as the t-value > 1,96 and the p-value < 0,05. It means that the exogenous variable has a significant effect on the endogenous variable. Meanwhile, Ho will be rejected if the p-value > 0,05 because the exogenous variable has no significant effect on the endogenous variable. Based on the result of this significance test, the direction of the relationship between the endogenous variable and the exogenous variable can be detected. This is because the sample original value of each relationship of influence can show the direction of the relationship of these variables. If the sample original is positive, then the influence of the exogenous variable on the endogenous variable is linear or positive as well. But if the sample original is negative, it means that the influence of the exogenous variable on the endogenous variable is negative or contradictory.

Table 8. Result of direct effect significance test and indirect effect significance test

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
X1 -> Y	0,258	0,255	0,053	4,873	0,000
X1 -> Y	0,242	0,246	0,055	4,410	0,000

Table 8 shows that the p-value of Open Innovation (X1) on Sustainability (Y) (X1 -> Y) is 0,000 with T statistic 4,873 and the path of a coefficient is positive. Given that the p-value < 0,05 and T statistic > 1,96 as well as the path of a coefficient is positive, then Ha is accepted. We also can see that p-value of Competitive Advantage (X2) on Sustainability (Y) (X2 -> Y) is 0,000 with T statistic 4,410

and the path of a coefficient is positive. Given that the p-value < 0,05 and T statistic > 1,96 as well as the path of a coefficient is positive, then Ha is accepted.

Therefore, it can be said that Open Innovation has a positive significant effect on Sustainability. It means that if Open Innovation is higher, Sustainability is also higher. Otherwise, if Open Innovation is lower, then Sustainability is also lower. This positive relationship has been proved by the results of Focus Group Discussions (FGD) and interviews conducted by the authors with the owners of culinary SMEs in 10 cities/provinces in Indonesia. Based on the interview with the culinary SME owners of Sama Dengan Coffee in Jakarta, they explained that innovation efforts are required. They need to follow some trends, provide the best products and services, as well as look for their weakness and handle it. Moreover, based on the interview with the culinary SME owners of Babathe in Makassar, they also stressed that SMEs need to carry out open innovation to ensure their sustainability. In this context, SMEs must collaborate with social media platforms, such as advertising products on Instagram, creating social media accounts for their business, and developing websites and advertisements on the Internet, so that their existence can be detected. The owners also need to innovate new things that are not yet existed in another place. Therefore, SMEs requires to improve their innovation that can give a positive effect on the business by continually increasing the work benefit that is crucial for the company.

Moreover, Competitive Advantage also has a positive significant effect on Sustainability. It means that if Competitive Advantage is higher, Sustainability is also higher. Otherwise, if Competitive Advantage is lower, then Sustainability is also lower. Based on the interview with the culinary SME owners of Babathe in Makassar, they explained that in order to improve competitive advantage, the SME owners in Indonesia must conduct innovation. The owners need to launch a different product by adding new menus to develop their products continuously. They have to ask the customers to review their products through instastory. From this instastory, the wider society can know the special quality of their culinary products compared with others.

Therefore, it can be said that both open innovation and competitive advantage can improve the sustainability to culinary SMEs. They have to give product innovation and product uniqueness so that the consumers can be more satisfied. Digital technology should be utilized for the marketing strategy to reach and attract many consumers. The result of this study is in line with the research carried out by Abd Aziz & Samad (2016), Liao et al. (2017), and Rauter et al. (2019) that open innovation has a significant effect on sustainability. Furthermore, SMEs also need to have their unique value or characteristics to compete with other competitors. This is because in order to improve competitive advantage, each company must have its special quality to win the competition. The result of this study is then in line with the research conducted by Jermsittiparsert (2020) that competitive advantage has a significant effect on sustainability.

6. Discussion and Practical Implications

6.1. The Role of Open Innovation in Improving Culinary SMEs' Sustainability

In the context of culinary SMEs, open innovation refers to the collaborative and inclusive approach in searching for ideas, skills, and external partners to enhance innovation and improve business sustainability. Our informants stated that the efforts of open innovation are conducted through active engagement with individuals, organizations, and stakeholder networks to exchange knowledge, share ideas, and create common values. They also acknowledge that open innovation provides several benefits for culinary SMEs in building their sustainability. Firstly, open innovation provides an opportunity in accessing various ideas and perspectives which can encourage creativity and innovation in business. By actively looking for external input, such as feedback from customers, insight from experts, and collaboration with culinary professionals, culinary SMEs can obtain fresh insight and perspective that direct to a unique culinary creation and treatment. The collaboration with external partners through open innovation then can assist culinary SMEs to access specific skills, technology, or resources that are

perhaps not available internally. For instance, creating partnerships with local farmers or suppliers will ensure a consistent supply of high-quality local ingredients. Not only that, building collaboration with an educational agency or food research agency can provide access to the very latest culinary technique or insight regarding developing trends.

Furthermore, our informants argued that open innovation gives a possibility to culinary SMEs to keep following industrial trends, consumer preferences, and developing technology. By actively participating in industrial events, exhibitions, and informal discussions, culinary SMEs can acquire precious market intelligence and find out the newest culinary development. This knowledge will support them to adapt more easily, anticipate the needs of customers, and develop innovative solutions in front of their competitors. We need to understand that open innovation is also involving direct engagement with customers in order to create a common value. The informants stated that they utilize the information from customers in product development so that culinary SMEs need to find recommendations, preferences, and feedback from their customers. This collaborative approach is not only increasing customers' satisfaction but also creating loyalty and possession feeling between customers. By actively listening to the customers' feedback and inputting their ideas, culinary SMEs can create an offer that is more appropriate to customers' interests. It surely can improve the business sustainability of culinary SMEs.

In this digital era, open innovation is usually facilitated through online platforms and social media. Culinary SMEs can utilize these channels to more engage with their audiences, ask for feedback, and obtain crowdsource ideas. Our informants admitted that they usually use online forums and the community to find out recommendations, collaborate with other culinary professionals, and even carry out a session for idea exchanges. This digital connectivity will increase the business scope and open innovation potentials as well as provide an opportunity for culinary SMEs to access more skills and resources. In order to successfully implement open innovation, culinary SMEs must develop collaborative culture, openness, and sustainable learning. These activities are involving the creation of infrastructure for sharing ideas, building partnerships with related stakeholders, and developing processes to evaluate and apply external ideas effectively. By creating collaborative and innovative cultures, culinary SMEs can keep developing and become the finest ones in the market competition.

6.2. The Role of Competitive Advantage in Improving Culinary SMEs' Sustainability

The culinary SMEs have several competitive advantages that contribute to their business sustainability in the culinary industry. One of the significant advantages is the ability to offer a unique and special culinary experience. Our informants argued that culinary SMEs that have specialization in their menu, food concept, or culinary technique can differentiate themselves from more common and bigger businesses within the market. By focusing on the market niche, culinary SMEs can attract certain customer basis which are looking for authentic and unique cuisine. In order to maintain this competitive advantage, the informants then decided to invest in sustainable culinary innovation. They keep following the newest food trends, exploring creative taste combinations, and experimenting with new cooking techniques. These constant innovation efforts aimed to ensure that they can offer fresh and attractive culinary as well as make the customers keep engaged and attracted to their products.

Another competitive advantage lies in the emphasis on high-quality ingredients and local resources. The informants prioritize the utilization of fresh local ingredients that not only contribute to the food's originality and special taste, but also support the local farmers and suppliers. By displaying the quality and origin of their ingredients, culinary SMEs can develop a competitive reputation and build trust among customers. Besides, our informants also admitted that they are often more competitive in providing customer service that is more personal and full of attention. Different from large companies, culinary SMEs can create a more intimate and personal experience for their customers. They can interact with the customers directly and fulfill the preferences of each of them. This personalized approach builds a strong relationship with customers and develops customer loyalty that is direct to the business

sustainability and positive image within the market.

From the marketing and branding side, culinary SMEs usually used several strategies to create a competitive advantage. Our informants emphasized storytelling and highlighted a unique narration behind their culinary concepts, ingredients, or cooking techniques. This provides an opportunity for them to connect with the customers at the emotional level, create original taste, and build a basis of loyal customers. Moreover, the informants also utilized social media and online platforms as effective marketing tools. They make some visually interesting content, display their culinary creations, and engage actively with their audiences through interactive posts and behind the scene photos or videos. This digital existence allows them to reach wider audiences, attract new customers, and maintain customer engagement. To ensure business sustainability, culinary SMEs give priority to operational efficiency and cost management. They optimize the supply chain, improve operational processes, and explore innovative technology to increase productivity and reduce costs. By preserving those efficient processes, culinary SMEs can maximize their profitability and invest to improve customers' experience as a whole.

Nevertheless, this study still has some limitations. First, we only used culinary SMEs which are located in 10 large cities, not all cities, in Indonesia. It makes the study cannot be generalized because it only covered those cities. Second, this study is not specified the kind of culinary SMEs that are being used as samples. We were not further explained whether we used coffee shops, bakeries, small restaurants, or other types. This is because although we only focus on 10 Indonesia larger cities, the amount is still huge so we cannot specify in more detail. This study then offered two practical recommendations for how culinary SMEs can leverage open innovation and competitive advantage. First, culinary SMEs should utilize digital technology to conduct research on consumer trends and the culinary market in general. It can provide insight to the owners about the new menus that need to be produced to attract more consumers. Second, the owners of culinary SMEs should create a risk management plan so they can survive the hazardous event, such as the Covid-19 pandemic. This plan should include several steps to cope with those challenges by creating new products, services, or marketing innovations.

7. Conclusion

The study aimed to examine the relationship between open innovation and sustainability as well as between competitive advantage and sustainability. As a unit of analysis, we used the information collected from the owners of culinary SMEs in 10 Indonesian large cities with total number of SMEs is 307 units. Culinary SMEs are important to be studied because it was mostly affected by the Covid-19 pandemic. After examining each variable by using the SEM-PLS model, this study showed a result that both open innovation and competitive advantage have a significant effect on sustainability. This result is further supported by the interview result that culinary SMEs need to carry out open innovation by looking for ideas through online platforms and building collaboration with external partners. These efforts can improve business sustainability because culinary SMEs can follow industrial trends, analyze consumer preferences, and utilize advanced technology to survive in this digital era. Furthermore, the interview results also showed that in order to improve business sustainability, culinary SMEs have to create unique products and special experiences for their customers. By implementing those strategies, culinary SMEs can differentiate themselves from their competitors, so their competitive advantage will be improved as well.

This study then provided several novel contributions. Mostly, this study has succeeded in examining the significant relationship between open innovation and sustainability as well as competitive advantage and sustainability. Given that there is no previous research discussing the same topic, this study has brought new insight regarding the relationship between open innovation, competitive advantage, and sustainability within culinary SMEs. Furthermore, the study also used a mixed method that is very complex because this method combines quantitative and qualitative methods. Thus, not only providing

the quantitative result delivered from the SEM-PLS model, but this study is also providing the qualitative result based on the interview with the owners of selected culinary SMEs. Therefore, we suggested that this study should be used as a starting point because it provides an interesting opportunity for future research concerning the effect of open innovation and competitive advantage on business sustainability. Moreover, we also suggested that future research can involve all culinary SMEs in Indonesia—because this study only covered 10 Indonesian cities—so that the result can be more generalized.

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