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ROLE OF PRODUCT INNOVATION IN INCREASING COMPETITIVE ADVANTAGE

Aprih Santoso[1]
Ardiani Ika Sulistyawati[2*]

[1]Universitas Semarang, Manajemen, Fakultas Ekonomi, Universitas Semarang, Indonesia
[2]Universitas Semarang, Akuntansi, Fakultas Ekonomi, Universitas Semarang, Indonesia
Email: aprihsantoso@usm.ac.id; ardiani@usm.ac.id
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ABSTRAK

Penelitian bertujuan memberikan bukti empiris pengaruh teknologi terhadap keunggulan bersaing dengan inovasi produk sebagai variabel mediasi pada industri kecil kreatif kuliner di Tlogosari Semarang. Sampel penelitian yang digunakan sebanyak 87 orang yang diperoleh dengan teknik pengambilan sampelnya metode sensus. Data dianalisis menggunakan analisis jalur dengan bantuan program SPSS'25. Berdasarkan hasil pengujian diperoleh hasil, teknologi dan inovasi produk berpengaruh signifikan dan positif terhadap keunggulan bersaing dan Inovasi produk sebagai variabel mediasi mampu memediasi teknologi untuk mempengaruhi keunggulan bersaing pada industri kecil kreatif kuliner di Tlogosari Semarang.
Kata Kunci: Industri Kreatif, Kuliner, Teknologi; Inovasi, Keunggulan Bersaing

ABSTRACT

This study aims to provide empirical evidence of the influence of technology on competitive advantage with product innovation as a mediating variable in the small creative culinary industry in Tlogosari Semarang. The research sample used was 87 people who were obtained by using the census method of sampling. The data were analyzed using path analysis with the help of the SPSS'25 program. Based on the test results, technology and product innovation have a significant and positive effect on competitive advantage and product innovation as a mediating variable is able to mediate technology to influence competitive advantage in small creative culinary industries in Tlogosari Semarang.
Keyword : *Creative Industry, Culinary, Technology; Innovation, Competitive Advantage*

INTRODUCTION

The emergence of competition in the business world is unavoidable. With competition, you will be faced with various opportunities and threats both from outside and from within the country. For this reason, it is required to always understand and understand what is happening in the market and what is the desire of consumers, as well as various changes in the business environment so that they can compete. It should try to minimize its weaknesses and maximize its strengths. Thus will choose and determine strategies that can be used to face the competition. With the increasingly fierce competition, it is necessary to understand what and how to manage the various resources it has. An important key to winning the competition lies in the ability to create a competitive advantage. Competitive advantage can come from various company

activities such as in designing, producing, marketing, delivering, and supporting its products. Each of these activities should be directed towards supporting the firm's relative cost position and creating a basis for creating differentiation. Many factors affect competitive advantage, one of which is technology (Cakmak & Tas, 2012).

In the level of increasingly fierce competition and technological advances that cannot be dammed, a product will grow and develop to a point, where the product will be difficult to distinguish from one another. To determine who is superior, the benchmark will depend on the readiness and courage to lay down the fundamentals of competitive strategy. Technology is also useful in terms of speeding up the production process and marketing products in other ways, such as online sales. Setyawati (2014), not only that, the company is also helped by the impact of the company's existence in competition in a market similar to (Aslizadeh, 2014). In order to win in a competition, in marketing today's products, manufacturers are not only based on product quality, but also depend on the strategy applied. Ahn & Seo (2018), the ability of business actors to apply technology also supports the marketing process or marketing program. The results of previous research from Cakmak & Tas (2012) show that technology has an effect on competitive advantage. However, the results of this study contradict Gunawan & Wachyun (2020) show that technology has no effect on competitive advantage.

Anthony & Govindarajan (2011) that to address different and contradictory research results, it is necessary to have a contingency approach which reveals that the relationship between the various variables studied is influenced by other variables that are conditional. This contingency approach allows other variables to act as mediation. From the inconsistent results of previous studies, it turns out that product innovation is considered capable of mediating the influence of technology on the above competitive advantages. Ofori & Ato-Mensah (2015) stated that innovation involves creativity and involves creative actions or ideas to make some real difference in the domain in which innovation is made. Innovation is beneficial for companies to create new value propositions through offering new products or services, adopting new organizational and operational practices, providing solutions for technology or creating new skills and competencies, innovation can also grow the skills and knowledge needed to effectively realize, master and improve existing technology, and create something new.

This research was conducted to provide a solution to the research gap above (from the inconsistent results of previous studies) by using the contingency approach above, namely by entering a new variable, namely product innovation as a mediating variable between the influence of technology on competitive advantage.

The purpose of this study is to provide empirical evidence of the influence of technology on competitive advantage with product innovation as a mediating variable in the small creative culinary industry in Tlogosari Semarang.

RESEARCH METHODS

The data collected is primary data using a questionnaire that has been obtained from the results of the distribution of questions. This study uses survey data collection techniques, observation and a list of questions. The research sample used was 87 people who were obtained by using the census method of sampling. This study uses a sample of small creative culinary industries in Tlogosari Semarang, which is growing where the location is under the administration

of the Semarang city government. The data were analyzed using path analysis with the help of the SPSS'25 program.

DISCUSSION

Descriptive statistics

Table 1. Calculation of Minimum, Maximum, Mean, Standard Deviation

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Technology	87	11.93	19.05	14.7920	1.63208
Product innovation	87	.11	10.58	1.1882	1.56133
Competitive Advantage	87	.29	16.68	2.0890	1.94013
Valid N (listwise)	87				

Heteroscedasticity Test

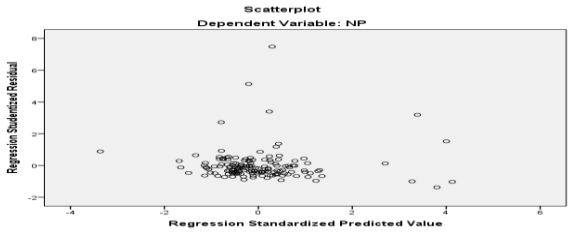

Figure 1. Heteroscedasticity Test Results

Figure 1 shows that the points spread randomly and are spread both above and below the number 0 on the Y axis. Thus, there is no heteroscedasticity problem in the regression model.

Multicollinearity Test

Table 2. Multicollinearity Test

		Collinearity Statistics	
Model		Tolerance	VIF
1	Technology	.848	1.179
	Product innovation	.245	4.081

a. Dependent Variable: Competitive Advantage

Table 2 describes the VIF (variance inflation factor) < 10 and the tolerance value > 0.1. So the regression model is free from multicollinearity symptoms.

Coefficient of Determination (R^2)

Table 3. Coefficient of Determination (R^2) Equation 1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.469[a]	.220	.198	1.39819

Table 3 explains the coefficient of determination (R Square) of equation 1 is 0.220 or 22%. This means that 22% of product innovation variations can be explained by technology, while the remaining 78% is explained by other reasons. such as: environment, product innovation, market orientation, and others.

Table 4. Coefficient of Determination of Equation 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.560[a]	.426	.309	1.94879

Table 4 shows the coefficient of determination (R Square) of equation 2 of 0.426 or 42.6%, this means that 42.6% of the variation in firm value can be explained by technology and product innovation, while the remaining 57.4% is explained by other reasons, such as: environment, product innovation, market orientation, and others.

F test

Table 5. Calculation of F test

ANOVA[a]

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	78.308	3	19.577	10.014	.0001[b]
Residual	277.602	84	1.955		
Total	355.910	87			

a. Dependent Variable: competitive advantage

b. Predictors: (Constant), technology, product innovation

Table 5 shows the calculated F value of 10.014 and the significance value of 0.000. F count (10.014) > F table (1.96) and a significance value of 0.0001 < 0.05, which is 0.0001, then Ha is accepted, meaning that there is a significant effect of technology, product innovation together on competitive advantage.

t TEST

Table 6. Regression Calculation of Equation 1
Coefficientsa

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.974	1.071		.910	.365
	Technology	.011	.003	.322	4.243	.000

a. Dependent Variable: product innovation

Table 6 shows the linear regression equation : Product innovation = 0.322Technology + e

The results when analyzed are as follows:

Technology

The results of the t-test obtained t arithmetic value of 4.243 and a significance value of 0.000. The significance value is < 5%, then the hypothesis (H1) is accepted, which means that there is a positive and significant effect between technology and product innovation. This means that the higher the technology, the higher the product innovation.

Table 7. Regression Calculation of Equation 2
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.259	1.497		2.177	.031
	Technology	.009	.004	.259	2.251	.039
	Product innovation	.265	.117	.262	2.264	. 029

a. Dependent Variable: competitive advantage

Table 7, shows the multiple linear regression equation as follows:

Competitive Advantage = 0.259 Technology + 0.262 Product innovation + e

The results were analyzed as follows:

1) Technology

The results of the t-test obtained t-count value of 2.251 and a significance value of 0.039. The significance value is < 5%, then the hypothesis (H2) is accepted, which means that there is a

significant positive effect between technology and competitive advantage. This means that the higher the technology, the higher the competitive advantage.

2) Product Innovation

The results of the t-test obtained t-count value of 2.264 and a significance value of 0.29. The significance value is < 5%, then the hypothesis (H3) is accepted, which means that there is a significant positive effect between product innovation and competitive advantage. This means that the higher the product innovation, the higher the competitive advantage.

Mediation Test of the Effect of Technology on Competitive Advantage through Product Innovation

The direct effect is obtained from the beta value of technology on competitive advantage, while the indirect effect of technology on competitive advantage through product innovation is obtained by multiplying the influence of technology on product innovation by the effect of product innovation on competitive advantage as follows:

The direct effect of technology on competitive advantage = 0.259
Indirect effect through product innovation = 0.322 x 0.262 = 0.084
Total influence = 0.259 + 0.084 = 0.343

The mediation effect of 0.084 is significant or not, tested with the Sobel test. Sobel test calculation through standard error, standard error calculation from indirect effect coefficient (Sp2p3)

$$S_{p2p3} = \sqrt{p3^2\, Sp2^2 + p2^2\, Sp3^2 + Sp22\, Sp3^2}$$

$$S_{p2p3} = \sqrt{(0{,}011)^2\,(0{,}117)^2 + (0{,}265)^2\,(0{,}003)^2 + (0{,}117)^2\,(0{,}003)^2}$$

$$S_{p2p3} = 0{,}0000024$$

Based on the results of Sp2p3, the statistical t value of the mediation effect is:

$$t = \frac{p2p3}{S_{p2p3}} = \frac{0{,}002915}{0{,}0000024} = 1208{,}74$$

The value of t count = 1208.74 > t table with a significance level of 0.05, which is 1.96, so the mediation coefficient is 0.084, which means that there is a mediation effect. This shows that product innovation mediates the influence of technology on competitive advantage. Innovation is also needed to achieve competitive advantage because innovative ideas coupled with the application of technology will further strengthen creative small industry players to compete in the eatif untuk bersaing di pasaran (Gupta et al., 2016; Affendy et al. 2015)

The Effect of Technology on Product Innovation

The results of the t-test obtained t arithmetic value of 4.243 and a significance value of 0.000. The significance value is < 5%, then the hypothesis (H1) is accepted, which means that there is a positive and significant effect between technology and product innovation. This means that the higher the technology, the higher the product innovation.

Technology helps someone in carrying out the company's operational activities. Increasingly sophisticated technology makes it easier for someone to access knowledge related to innovation so that new innovations appear related to processes, products, and services. The results of this study support Setiadi & Narsa (2019) which shows that technology has a significant effect on innovation. However, the results of this study contradict Folkinshteyn & Lennon (2016) which show that employees are less confident in their knowledge so that the innovations created are not optimal, which means that technology does not have a significant effect on innovation.

The Influence of Information Technology on Competitive Advantage

The results of the t-test obtained t-count value of 2.251 and a significance value of 0.039. The significance value is < 5%, then the hypothesis (H2) is accepted, which means that there is a significant positive effect between technology and competitive advantage. This means that the higher the technology, the higher the competitive advantage.

Information technology will affect the competitive advantage of SMEs, where with adequate information technology will certainly be able to increase competitive advantage, where information technology is a set of technologies used by an organization to produce, process, and disseminate information in every form. Therefore, information technology provides support for the company's operations effectively and efficiently. Information technology is useful for reducing costs in business activities, especially for SMEs to allocate and save their budgets for other uses (Muafi & Roostika, 2014). Good technology is technology that is useful in building a company's competitive advantage. The results of the study support Cakmak & Tas (2012) which shows that technology has an effect on competitive advantage. However, the results of this study contradict Gunawan & Wachyun (2020) who show that technology has no effect on competitive advantage.

The Effect of Innovation on Competitive Advantage

The results of the t-test obtained t-count value of 2.264 and a significance value of 0.29. The significance value is < 5%, then the hypothesis (H3) is accepted, which means that there is a significant positive effect between product innovation and competitive advantage. This means that the higher the product innovation, the higher the competitive advantage.

Innovation has an influence on competitive advantage, where the problem of innovation becomes an important symptom observed since the emergence of demands to have a competitive advantage in a business in order to survive in the market. The concept of competitive advantage is very important in the business world, even in the home industry. The theory of competitive advantage is usually associated with generating or improving organizational performance. Usually increasing competitive advantage among companies has a positive effect on increasing business productivity as well as increasing innovation, in the process of this research business actors as respondents innovate in their products because of their confidence and good experience in responding to new products by the market. The results of this study are

in accordance with the research of Gunawan & Wachyun (2020) which shows that innovation affects competitive advantage. However, this result contradicts Minoja et al, (2010) which shows that product innovation has no effect on competitive advantage.

CONCLUSION

From the results of statistical tests, it can be concluded that technology has a positive and significant effect on product innovation. Technology and product innovation have a positive and significant impact on competitive advantage in the culinary creative industry in Tlogosari Semarang. In addition, it turns out that product innovation as a mediating variable is also able to mediate technology to influence competitive advantage in small creative culinary industries in Tlogosari Semarang.

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