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The Synergistic Effect of Open Innovation and Customer Participation on Innovation Performance: Absorptive Capacity as a Key Mediator (Case Study: MSEs Si Bakul in Yogyakarta)

Feri Dhoni Saputro[1], Dessy Isfianadewi[2]

[1,2] Faculty of Business and Economics, Islamic University of Indonesia, Yogyakarta, Indonesian

Corresponding Author: dessy.isfianadewi@uii.ac.id

Abstract

This research investigates how open innovation and customer involvement affect innovation performance, with absorptive capacity serving as a mediating variable. A quantitative methodology was adopted, incorporating field research to analyse the causal relationships among these variables. The study focuses on food micro and small enterprises (MSEs) in Yogyakarta, selecting a sample through random purposive sampling. This sample consists of 155 MSEs that are part of the SiBakul network and operate within the food industry, chosen based on the minimum path coefficient requirements. Both primary and secondary data were gathered using a 5-point Likert scale questionnaire administered directly by the researcher. The findings reveal that open innovation and customer involvement significantly and positively affect innovation performance. Furthermore, through the mediation of absorptive capacity, these factors also exert a positive indirect impact on innovation performance. It should be noted that this study is confined to food MSEs affiliated with SiBakul, and results may vary in different sectors.

Keywords: innovation performance, open innovation, customer involvement, absorptive capacity.

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INTRODUCTION

Companies must enhance their business performance to grow or survive by offering products or services with greater value than their competitors (Dewi & Nuswantara, 2021). Business performance, which depends on managerial ability to create a competitive advantage (Khadka & Maharjan, 2017) can be improved through innovation to boost innovation performance.

To compete effectively, Micro and Small Enterprises (MSEs) must prioritize innovation, which is essential for enhancing innovation performance. Innovation enables businesses to lead the market by introducing novel products, processes, or business models. It also reduces the likelihood of competitors gaining a first-mover advantage in the market. This strategic focus on innovation is crucial not only for improving business performance but also for establishing a competitive advantage and securing long-term success in a highly competitive environment (Lestari, et. al., 2019).

The researcher analyzed why innovation performance is crucial for MSEs in Indonesian. According to the website djkn.kemenkeu.go.id (2023), MSEs in Indonesian are categorized into four types of businesses as follows:

Table 1. Contribution of Enterprises in Indonesian

Types of Enterprises	Monthly Revenue	Contribution
Large Enterprises	> Rp. 50 billion	0,01%
Medium Enterprises	> Rp. 15 B – Rp. 50 B	0,06%
Small Enterprises	> Rp. 2 B – Rp. 15 B	0,30%
Micro Enterprises	≤ Rp. 2 billion	99,62%

Resource: djkn.kemenkeu.go.id (2023)

From the table 1, it is evident that micro enterprises contribute a substantial 99.62% to the MSEs sector. This significant contribution necessitates continuous innovation by MSEs in Indonesia to remain competitive and sustain their business. To enhance innovation performance, the government has taken proactive measures. One such initiative by the local government is the launch of the SiBakul program, aimed at encouraging and supporting the improvement of innovation performance among MSE's.

To improve innovation performance, the DIY government mapped the number of MSEs by sector on the website yogyakarta.beta.bps.go.id (2023). The results showed that 46.90% are in the food sector, 17.98% in woodworking, 15.45% in woven goods,

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11.07% in rattan, 4.66% in ready-made clothing, and the remainder in other processing sectors. According by Deny (2024) dan (Diskopukm, 2024) 58.27% of MSEs are registered in the SiBakul program. The researcher selected the food sector registered in the SiBakul program due to its significant impact on innovation performance.

Within the innovation framework, innovation performance emphasizes the ability of new products to meet desired objectives, such as enhancing quality of life, strengthening company competitiveness, and providing substantial added value. (Audretsch et al., 2023).

Performance innovation plays a crucial role in helping SMEs enhance their competitiveness and gain a competitive edge in the market compared to their competitors (Almodóvar & Nguyen, 2022). Several factors influence performance innovation, including open innovation (Rangus, Drnovšek, Di Minin, & Spithoven, 2017) and customer involvement (Saldanha et al., 2017) with absorptive capacity (Cui & Wu, 2017) serving as a mediating variable.

Innovation has evolved from the closed innovation paradigm to open innovation (Radziwon, Chesbrough, Vanhaverbeke, & West, 2024). Open innovation has become a popular strategy in the era of advanced technology because it facilitates the integration of internal and external resources, thereby accelerating the innovation process and enhancing a company's innovation capabilities (Radziwon et al., 2024). Open innovation refers to the approach where companies improve their innovation performance by leveraging external information and resources to develop product innovations (Aksoy, 2017; Basco, Hernández-Perlines, & Rodríguez-García, 2020).

Open innovation has proven to play a crucial role in enhancing innovation performance by utilizing external resources, which allows companies to introduce and improve the quality of product innovations. Therefore, open innovation is an effective strategy for improving innovation performance and competitive advantage (Bagherzadeh, Markovic, Cheng, & Vanhaverbeke, 2020; Lee, Kim, & Yoo, 2020; Rangus et al., 2017; Scholastica E & Maurice I, 2013; Ta'Amnha, Magableh, Asad, & Al-Qudah, 2023). However, excessive open innovation may not have an impact on innovation performance due to delays in integration processes, insufficient collaboration, resource limitations, lack of oversight, and delays in evaluation (Wang, Han, & Li, 2023).

Another variable affecting innovation performance is customer involvement. Customer involvement stems from the creative and interactive experiences of consumers, shaping the relationship between customers and innovation performance (Brodie, Hollebeek, Jurić, & Ilić, 2011). By involving customers in the innovation process,

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companies can identify and translate consumer needs into new products that better meet their desires and expectations (Nambisan, 2002) , thereby enhancing innovation performance. Customer involvement can influence strategies and engagement levels, affecting the effectiveness and rationality of customer relationships and complaints (Chang & Taylor, 2016; Cui & Wu, 2017; Morgan et al., 2018; Saldanha et al., 2017). However, excessive customer involvement may not have an impact on innovation performance due to the potential for reduced accuracy of the information gathered. This can occur because involved customers might not possess the qualifications needed to provide high-quality input, leading to less valid information (Najafi-Tavani, Zaefarian, Robson, Naudé, & Abbasi, 2022).

The researcher includes absorptive capacity as a mediating variable to assess the indirect effects of open innovation and customer involvement on innovation performance. Absorptive capacity refers to a set of routines and processes that a company employs to acquire, transform, and utilize knowledge, enabling the development of dynamic, adaptive, and flexible capabilities (George, Zahra, Wheatley, & Khan, 2001). The use of knowledge through absorptive capacity facilitates the development of diverse and integrated innovations, thereby enhancing overall innovation performance (Lewin, Massini, & Peeters, 2020). Absorptive capacity is crucial for recognizing, absorbing, and applying new knowledge from external sources (open innovation) and customer feedback (customer involvement). In other words, absorptive capacity helps companies optimally leverage external resources and customer input to improve innovation performance (Cui & Wu, 2017; Rangus et al., 2017).

LITERATURE REVIEW

Knowledge – Based View theory (KBV)

Knowledge-based theory provides a crucial foundation for understanding how human capital involvement plays a role in company routines. This theory views knowledge as a strategic asset that can offer a competitive advantage to firms (Grant, 1996). It emphasizes the development of knowledge as an intangible resource essential for a company's performance (Bakić, Filipović, & Kostić-Stanković, 2014).

In the context of knowledge-based theory, two types of knowledge are identified as key to innovation: internal-oriented knowledge and external-oriented knowledge (Menon & Pfeffer, 2003). External-oriented knowledge facilitates the accelerated implementation of new knowledge acquired from outside the organization (Gopalakrishnan & Bierly, 2001).

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The Knowledge-Based View (KBV) theory represents an evolution of the Resource-Based View (RBV) theory. KBV emphasizes the importance of knowledge in fostering human capital engagement in routine company activities and is seen as a source of new knowledge for competitive advantage (Grant, 1996). Unlike RBV, which focuses on the development of supply chain processes, KBV places greater emphasis on the development of knowledge as an intangible resource (Bakić et al., 2014). The knowledge-based theory with an external orientation helps companies reduce development costs and increase the speed of implementing new knowledge acquired (Gopalakrishnan & Bierly, 2001).

Innovation Performance

Innovation performance refers to achieving the goals set by a company through its innovative efforts (Audretsch et al., 2023). Companies are increasingly focusing on the success of innovation performance (Benitez, Arenas, Castillo, & Esteves, 2022). Innovation performance is a crucial aspect that allows companies to surpass competitors and gain a competitive edge (Almodóvar & Nguyen, 2022). It serves as a key element in human resources, providing a sustainable competitive advantage (Turró, Urbano, & Peris-Ortiz, 2014).

The indicators for innovation performance used in this study are divided into three categories (Baker, Grinstein, & Harmancioglu, 2016): 1) Introducing new products that go beyond mere improvements; 2) Representing new ways to meet customer needs; 3) The percentage of sales generated by new products or services.

Open Innovation

Innovation is the activity or process of human thinking to create something new, involving input, processes, and outputs, and providing benefits to human life. The paradigm of innovation, which initially focused on closed innovation, has now shifted to open innovation (Pénin, Hussler, & Burger-Helmchen, 2011). The open innovation approach requires a range of tools and processes designed to facilitate interaction and collaboration, even with competitors, which is central to the concept of open innovation (Slowinski & Sagal, 2010).

The indicators for open innovation used in this study, based on Inauen & Schenker-Wicki (2011), are divided into four categories:

1. Collaboration with external partners.
2. Activities to acquire technology.

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3. Utilization of external information sources.
4. Application of external technology to create innovations.

Customer Involvement

Customer involvement is a valuable source of knowledge, and customer engagement in the innovation process can help convert consumer needs into new products (Nambisan, 2002). In this study, the indicators of customer involvement, as identified by Michaelidou & Dibb (2008), are categorized into four aspects:

1. Normative involvement.
2. Subjective involvement.
3. Long-term involvement.
4. Situational involvement.

Absorptive capacity

Absorptive capacity is the ability to identify, evaluate, and utilize new information and knowledge from external sources, and then integrate it to achieve the company's commercial objectives (Lewin et al., 2020). This process includes the use of external information through exploratory learning, transformational learning, and exploitative learning (Lubatkin, Lane, Collin, & Very, 2007). In this study, the indicators of absorptive capacity used by the researcher are divided into four aspects (Asogwa et al., 2020):

1. Transformation capability.
2. Assimilation capability.
3. Exploitation capability.
4. Acquisition capability.

HYPOTHESIS

The effect of open innovation on innovation performance

Open innovation has proven to play a crucial role in enhancing innovation performance by leveraging external resources, which enables companies to introduce new product innovations and improve their quality. Therefore, open innovation is an effective strategy for enhancing innovation performance and competitive advantage (Bagherzadeh et al., 2020; Lee et al., 2020; Rangus et al., 2017; Scholastica E & Maurice I, 2013; Ta'Amnha et al., 2023).

However, excessive open innovation have no effect on innovation performance due to delays in integration processes, lack of collaboration, resource constraints,

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insufficient oversight, and delays in evaluation (Wang et al., 2023). Based on these observations, the researcher proposes a positive relationship in the research hypothesis. Therefore, the hypothesis is as follows:

H_1: Open innovation has a significant and positive direct impact on innovation performance

The effect of customer involvement on innovation performance

Customer involvement originates from the creative and interactive experiences of consumers, establishing a connection between consumers and innovation performance (Brodie et al., 2011). By involving customers in the innovation process, their needs can be identified and translated into new products that better align with their desires and expectations (Nambisan, 2002) Thus, customer involvement can enhance innovation performance. Services based on customer involvement can influence strategies and the level of engagement, affecting the effectiveness and rationality of customer relationships and feedback (Chang & Taylor, 2016; Cui & Wu, 2017; Morgan et al., 2018; Saldanha et al., 2017).

However, excessive customer involvement may have no effect on innovation performance due to the potential for reduced accuracy in the obtained information. This occurs because involved customers might lack the qualifications to provide high-quality input, resulting in less valid information (Najafi-Tavani et al., 2022).

Based on these observations, the researcher proposes a positive relationship in the research hypothesis. Therefore, the hypothesis is as follows:

H_2: Customer involvement has a significant and positive direct impact on innovation performance

The effect of open innovation on innovation performance mediated by absorptive capacity

Open innovation plays a crucial role in enhancing a company's innovation performance by supporting the development of absorptive capacity. This approach allows companies to access and utilize new knowledge and ideas from external sources, which strengthens their ability to absorb, process, and apply relevant information. According to Rangus et al. (2017), open innovation not only broadens a company's access to innovative knowledge but also reinforces its absorptive capacity. With strong absorptive capacity, companies can more effectively integrate and leverage new knowledge to optimize their innovation performance.

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Therefore, open innovation has a significant positive impact on innovation performance through an indirect effect mediated by absorptive capacity. The success of open innovation in improving a company's innovation performance greatly depends on how well the company develops and utilizes its absorptive capacity (Chou et al., 2016). Based on above, the hypothesis is:

H_3: Open innovation has a significant and positive indirect effect on innovation performance mediated by absorptive capacity

The effect of customer involvement on innovation performance mediated by absorptive capacity

Customer involvement significantly boosts innovation performance. Engaging customers influences strategy, individual involvement levels, and the effectiveness of customer relationships and complaint management. The more customer involvement is integrated, the greater its impact on innovation performance (Saldanha et al., 2017). Therefore, it can be concluded that customer involvement has a significant positive indirect effect on innovation performance through the mediation of absorptive capacity (Ma, Qing, Ock, Wu, & Zhou, 2022). Based on this, the hypothesis is:

H_4: Customer involvement has a significant and positive indirect effect on innovation performance mediated by absorptive capacity

Research Framework

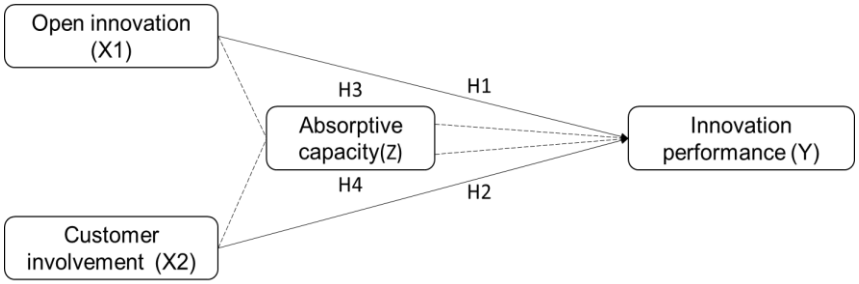


Figure 1. Research Framework
Source: data processed (2024)

RESOURCE METHODS

This study employs a quantitative approach using field research methods, where data is directly obtained from field activities. The quantitative method, which involves numerical data for statistical analysis (Sekaran & Bougie, 2013), is used to identify the

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effects between two or more variables. The research design focuses on causal relationships, analyzing the impact of independent variables on dependent variables (Sekaran & Bougie, 2013).

The aim of this research is to analyze the impact of open innovation (X1) and customer involvement (X2) on innovation performance (Y) mediated by absorptive capacity (Z). Smart PLS 3.2 software will be used for data analysis in this study.

The population for this study includes all food MSEs in Yogyakarta, which represent 46.90% of the 57,960 MSEs in the region. A sample will be selected using random purposive sampling, combining random sampling, where every element of the population has an equal chance of being selected, with purposive sampling, which selects based on specific criteria (Sekaran & Bougie, 2013). The criteria for the sample in this study are:

1. Food MSEs in Yogyakarta.
2. Registered in the SiBakul program with new product innovations and adaptation to open innovation.
3. Using the SiBakul application.
4. The SME has been in operation for more than one year.

The sample size for this study is determined based on minimum path coefficients (P min) and 80% power, as recommended by Hair et al. (2022) , resulting in 155 respondents.

Primary data for this study is collected through questionnaires from food MSEs in Yogyakarta, while secondary data is sourced from journals, books, theses, and relevant policy and performance information from the SiBakul program. Data collection involves distributing questionnaires online (Google Forms) and conducting direct visits to MSE's. The questionnaires use a five-point Likert scale, allowing respondents to choose from provided options based on their conditions and experiences. This scale is chosen to avoid potential confusion that could arise from more complex scales, such as those with 7 to 13 points (Hair et al., 2022).

Data analysis utilizes Partial Least Squares (PLS), a part of Structural Equation Modelling (SEM), to optimize relationships between variables (Hair et al., 2022). The PLS analysis is conducted in two stages: first, testing the measurement model (outer model) with validity (Average Variance Extracted) and reliability (composite reliability and Cronbach alpha) to ensure consistency; second, testing the structural model (inner model) to assess latent variable relationships, including R Square, Effect Size (f^2), and direct and indirect tests among research variables

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DISCUSSION

Descriptive variables

Descriptive analysis is a statistical method used to describe or summarize data in a way that is easy to understand. Its purpose is to provide an overview of the collected data without making inferences or drawing conclusions about a broader population from the sample. In this study, the researcher performed a descriptive analysis on the variables under investigation, and the results obtained are as follows:

Table 2. Descriptive Variables

Research Variable	Mean	Criteria
Open innovation (X1)	4,122	Effective
Customer involvement (X2)	4,092	Effective
Absorptive capacity (Z)	4,218	Highly Effective
Innovation performance (Y)	4,233	Highly Effective

Source: Data processed (2024)

Based on the descriptive analysis, the variables of absorptive capacity and innovation performance among MSEs registered in the SiBakul program show very effective questionnaire weights. This indicates that both variables received high ratings from respondents in the SiBakul program. Thus, absorptive capacity and innovation performance have been effectively implemented within the MSEs participating in the SiBakul program, and the questionnaires given to the MSEs accurately reflect the current situation and conditions.

Partial Least Squares Analysis - Outer Model

This study employs the Partial Least Squares (PLS) method using Smart PLS 3.2 to analyses complex variable relationships. The sample consists of 155 respondents. The PLS analysis is divided into two parts: the outer model and the inner model. The first step is the outer model.

In Partial Least Squares (PLS) analysis, the outer model is pivotal in evaluating the validity and reliability of latent constructs by examining the measurement indicators associated with them. This aspect of the analysis is dedicated to assessing how effectively these indicators represent the latent constructs they are designed to measure.

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Specifically, the outer model analysis involves conducting a series of validity and reliability tests to ensure that the constructs are accurately and consistently captured.

Outer Model - Validity and reliability test

In this study, validity is assessed using the average variance extracted (AVE). AVE is an indicator for measuring construct validity in PLS-SEM and is used to evaluate the relationships between latent variables and confirm the model's fit with the data. An AVE value above 0.5 indicates acceptable validity (Fornell & Larcker, 1981). According to Hair et al. (2022), reliability testing uses Composite Reliability and Cronbach's Alpha. Data is deemed reliable if the Composite Reliability value exceeds 0.7 and if the Cronbach's Alpha value is also above 0.7. The results obtained in this study are as follows:

Table 3. Validity test – *convergent validity*

Variable	Reliability test		Validity test
	Cronbach's Alpha	Composite Reliability	AVE
OI (X1)	0.903	0.922	0.596
CI (X2)	0.885	0.909	0.555
AC (Z2)	0.917	0.932	0.632
IP (Y)	0.905	0.926	0.678

Source: Data processed (2024)

Based on the validity and reliability test data, the results show that Cronbach's Alpha and Composite Reliability values are above 0,7 (Hair et al., 2022) and average variance extracted (AVE) value is above 0,5 (Fornell & Larcker, 1981). This indicates that the data from the investigated variables are valid and reliable. The next step is to determine the inner model of the study.

Partial Least Squares Analysis – Inner Model

In Partial Least Squares (PLS) analysis, the inner model is a fundamental component that delineates the structural relationships among latent variables or constructs within the theoretical framework of the study. This model provides a comprehensive view of how different constructs interact and influence each other, offering critical insights into the underlying dynamics of the research. The analysis of the inner

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model encompasses several key aspects: R Square (R^2), Effect Size (f^2), and the examination of both direct and indirect effects.

Inner Model – Uji R Square (R^2)

R-Square, also known as the coefficient of determination, is a statistical measure used to assess how well the independent variables explain the variation in the dependent variable within a regression model. Specifically, R-Square values range from 0 to 1, where 0 indicates that the independent variables do not explain any of the variance in the dependent variable, and 1 indicates that all variation in the dependent variable is explained by the independent variables. The results obtained in this study are as follows:

Table 4. R-Square test

Indicators	*R Square*	*R Square Adjusted*
AC (Z2)	0.865	0.863
IP (Y)	0.905	0.903

Source: Data processed (2024)

Based on the data, the results are as follows:

- R-Square of 0.865 for absorptive capacity indicates that 86.5% of the variation in absorptive capacity is explained by open innovation and customer involvement. This shows the model effectively explains changes in absorptive capacity, with 13.5% of the influencing factors not included in the study.
- R-Square of 0.905 for innovation performance means that 90.5% of the variation in innovation performance is explained by open innovation, customer involvement, and absorptive capacity. This indicates a strong model for explaining changes in innovation performance, with 9.5% of influencing factors not included in the study.

Inner Model – Uji f effect

Effect size is a statistical measure that indicates the strength or impact of an independent variable on a dependent variable in a research model. It provides insight into the practical significance of the relationship between variables, beyond just statistical significance. The value of f^2 is categorized as small (0.35), medium (0.15), or large (0.02) based on its effect on the dependent variable (Cohen, 1988).

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Table 5. f-effect test:

Variable	OI (X1)	CI (X2)	AC (Z2)	IP (Y)
OI (X1)			0.496	0.104
CI (X2)			0.385	0.085
AC (Z2)				0.407
IP (Y)				

Source: Data processed (2024)

Based on the data above, the following results are obtained:

- Effect size between open innovation and absorptive capacity. Nilai f^2 = 0.496, categorized as large, indicating a significant impact of open innovation on absorptive capacity.
- Effect Size between Open Innovation and Innovation Performance. Nilai f^2 = 0.104, categorized as small, showing a minor impact of open innovation on innovation performance.
- Effect Size between customer involvement dan absorptive capacity. Nilai f^2 = 0.385, categorized as medium, suggesting a moderate impact of customer involvement on absorptive capacity.
- Effect size between customer involvement dan innovation performance. Nilai f^2 = 0.085, categorized as small, indicating a minor effect of customer involvement on innovation performance.
- Effect size between absorptive capacity and innovation performance. Nilai f^2 = 0.407, categorized as large, reflecting a significant impact of absorptive capacity on innovation performance.

Inner Model – direct dan indirect effect

In this study, the researcher used direct and indirect effects to examine the relationships between the variables. Additionally, conclusions were drawn from the previously established hypotheses. The results are as follows:

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Table 6. Model direct effect dan indirect effect

Hypothesis	Orig	T Statistics	P Values	Results
model direct effect				
OI (X1) -> IP (Y)	0.241	2.949	0.002	H_1 accepted
CI (X2) -> IP (Y)	0.209	2.239	0.013	H_2 accepted
model indirect effect				
OI (X1) -> AC (Z2) -> IP (Y)	0.274	4.193	**0.000**	H_3 accepted
CI (X2) -> AC (Z2) -> IP (Y)	0.241	3.573	**0.000**	H_4 accepted

Source: Data processed (2024)

Based on Table 6, the results are as follows:

- H_1: Open innovation has a significant positive effect on Innovation Performance. With a sample size of 155, the t-table value using a one-tailed test at 0.05 significance is 1.96. The t-statistic is 2.949 (> 1.96) and the p-value is 0.002 (< 0.05), indicating a significant effect. Thus, Open innovation significantly positively affects Innovation Performance, and Hypothesis 1 is accepted.
- H_2: Customer involvement has a significant positive effect on Innovation Performance. With the same sample size, the t-table value is 1.96. The t-statistic is 2.239 (> 1.96) and the p-value is 0.013 (< 0.05), showing a significant effect. Therefore, Customer involvement significantly positively affects Innovation Performance, and Hypothesis 2 is accepted.
- H_3: Open innovation significantly positively affects Innovation Performance mediated by absorptive capacity. With the same sample size, the t-table value is 1.96. The t-statistic is 4.193 (> 1.96) and the p-value is 0.000 (< 0.05), indicating a significant effect. Hence, Open innovation significantly positively affects Innovation Performance through absorptive capacity, and Hypothesis 3 is accepted.
- H_4: Customer involvement significantly positively affects Innovation Performance mediated by absorptive capacity. With the same sample size, the t-table value is 1.96. The t-statistic is 3.573 (> 1.96) and the p-value is 0.000 (< 0.05), showing a significant effect. Thus, Customer involvement significantly positively affects Innovation Performance through absorptive capacity, and Hypothesis 4 is accepted

The effect of open innovation on innovation performance

The results of hypothesis testing indicate that open innovation has a significant impact on innovation performance. Open innovation, which leverages external sources,

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enhances a company's collaboration and innovation capabilities, thus positively affecting innovation performance (Aksoy, 2017; Basco et al., 2020; Laursen & Salter, 2006).

In Yogyakarta, MSEs that are open to external information sources, such as through SiBakul seminars, can maximize their innovation performance. The Entrepreneurship Incubation Training program held by the MSEs Office in December 2023 provided MSEs with opportunities to enhance innovation, sell products in marketplaces, and collaborate with off takers like Alfamidi. MSEs participating in this program can access export opportunities, provided their products are high-quality and innovative.

In conclusion, open innovation is shown to have a significant positive effect on innovation performance, supporting the view that openness to external innovation drives innovation performance (Bagherzadeh et al., 2020; Lee et al., 2020; Rangus et al., 2017; Scholastica E & Maurice I, 2013; Ta'Amnha et al., 2023). This study rejects the previous findings by X. Wang et al. (2023), which stated that open innovation does not affect innovation performance.

The effect of open innovation on innovation performance

The results of hypothesis testing indicate that customer involvement has a positive and significant impact on innovation performance. Customer involvement, which includes feedback and suggestions from customers, helps translate customer needs into improved new products (Nambisan, 2002). This is recognized in marketing research and contemporary management practices such as agile methodologies (Hult, Morgeson, Morgan, Mithas, & Fornell, 2017).

MSEs partnered with SiBakul utilize customer involvement to enhance products and reduce risks. Social media and marketplaces are used to gather consumer feedback and suggestions, which are then applied to product improvement and innovation. A concrete example is Gemini's Sweet and Treat, which adapted customer suggestions to produce milk bun, a viral food product from Thailand.

The milk bun produced by Gemini's Sweet and Treat received positive responses from consumers, with numerous orders and interactions on social media. Data shows that customer involvement significantly contributes to innovation performance, supporting findings that customer involvement has a direct positive impact on innovation performance (Chang & Taylor, 2016; Cui & Wu, 2017; Morgan et al., 2018; Saldanha et al., 2017) and rejecting the results of Najafi-Tavani et al. (2022).

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The effect of open innovation on innovation performance mediated by absorptive capacity

The results of hypothesis testing show that open innovation has a positive and significant impact on innovation performance when mediated by absorptive capacity. High levels of open innovation in MSEs, supported by their ability to absorb information, enhance innovation performance. MSEs in DI Yogyakarta actively access various sources of information and new ideas from social media platforms like Facebook, Instagram, and Tik-Tok to improve their products and services.

Social media plays a role in facilitating access to the latest trends and technologies, enabling MSEs to adapt innovations more quickly and improve their performance. Training from SiBakul also contributes to enhancing MSEs ability to utilize information from external sources, including social media, for product development.

Thus, open innovation has a significant and positive impact on innovation performance mediated by absorptive capacity, supported by information obtained through social media and SiBakul training, in line with previous research (Chou, Yang, & Chiu, 2016; Rangus et al., 2017).

The effect of customer involvement on innovation performance mediated by absorptive capacity

The results of hypothesis testing indicate that customer involvement has a significant positive impact on innovation performance, with absorptive capacity as a mediator. Higher levels of customer involvement, supported by absorptive capacity, lead to increased innovation performance. SMEs in DI Yogyakarta actively receive and respond to customer feedback and complaints to improve their products.

A concrete example is the SME Keripik K'wa Kelor and Waluh, which changed its packaging design based on customer feedback. The product packaging, initially considered less attractive, was redesigned to be more appealing based on information from consumers and the applied absorptive capacity.

Therefore, customer involvement has a significant positive impact on innovation performance, mediated by absorptive capacity, as evidenced by previous studies (Saldanha et al., 2017).

CONCLUSION

The study results indicate that open innovation significantly and positively affects innovation performance, both directly and through the mediation of absorptive capacity.

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High openness to innovation enhances innovation performance by improving information absorption. Additionally, customer involvement positively contributes to innovation performance, both directly and via absorptive capacity. High consumer involvement, supported by strong absorptive capacity, improves MSEs innovation performance.

MSEs are advised to actively engage in open innovation by leveraging social media, the internet, and participating in seminars and workshops. This is crucial for enhancing innovation performance and avoiding stagnation in product development. Researchers should further explore variables within open innovation and absorptive capacity and examine their effects on innovation performance.

MSEs should utilize modern media and attend relevant training to boost their openness to innovation. Training programs, including those from SiBakul, can help MSEs address challenges and enhance their innovation performance. Effective implementation of open innovation, supported by appropriate training, can significantly improve innovation performance.

REFERENCES

Aksoy, Hasan. (2017). How do innovation culture, marketing innovation and product innovation affect the market performance of small and medium-sized enterprises (SMEs)? Technology in Society, 51. https://doi.org/10.1016/j.techsoc.2017.08.005

Almodóvar, Paloma, & Nguyen, Quyen. (2022). Product innovation of domestic firms versus foreign MNE subsidiaries: The role of external knowledge sources. Technological Forecasting and Social Change, 184. https://doi.org/10.1016/j.techfore.2022.122000

Audretsch, David B., Belitski, Maksim, Bui, Hong T. M., & Herzig, Monika. (2023). Improvisation and Innovation in Teams: The Jazz Effect. British Journal of Management, 34(1), 150–170. https://doi.org/10.1111/1467-8551.12588

Bagherzadeh, Mehdi, Markovic, Stefan, Cheng, Jim, & Vanhaverbeke, Wim. (2020). How Does Outside-In Open Innovation Influence Innovation Performance? Analyzing the Mediating Roles of Knowledge Sharing and Innovation Strategy. IEEE Transactions on Engineering Management, 67(3). https://doi.org/10.1109/TEM.2018.2889538

Baker, William E., Grinstein, Amir, & Harmancioglu, Nukhet. (2016). Whose Innovation Performance Benefits More from External Networks: Entrepreneurial or Conservative Firms? Journal of Product Innovation Management, 33(1), 104–120. https://doi.org/10.1111/jpim.12263

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Bakić, Tamara Vlastelica, Filipović, Vinka, & Kostić-Stanković, Milica. (2014). Innovative Management and Firm Performance. In Maja Levi Jakšić, Slađana Barjaktarović Rakočević, & Milan Martić (Eds.), Innovative Management and Firm Performance: An Interdisciplinary Approach and Cases. https://doi.org/10.1057/9781137402226

Basco, Rodrigo, Hernández-Perlines, Felipe, & Rodríguez-García, María. (2020). The effect of entrepreneurial orientation on firm performance: A multigroup analysis comparing China, Mexico, and Spain. Journal of Business Research, 113. https://doi.org/10.1016/j.jbusres.2019.09.020

Benitez, Jose, Arenas, Alvaro, Castillo, Ana, & Esteves, Jose. (2022). Impact of digital leadership capability on innovation performance: The role of platform digitization capability. Information and Management, 59(2). https://doi.org/10.1016/j.im.2022.103590

Brodie, Roderick J., Hollebeek, Linda D., Jurić, Biljana, & Ilić, Ana. (2011). Customer engagement: Conceptual domain, fundamental propositions, and implications for research. Journal of Service Research, 14(3). https://doi.org/10.1177/1094670511411703

Chang, Woojung, & Taylor, Steven A. (2016). The effectiveness of customer participation in new product development: A meta-analysis. Journal of Marketing, 80(1). https://doi.org/10.1509/jm.14.0057

Chou, Christine, Yang, Kuo Pin, & Chiu, Yu Jen. (2016). Coupled open innovation and innovation performance outcomes: Roles of absorptive capacity. Corporate Management Review, 36(1), 37–68.

Cohen, Jacob. (1988). Statistical power analysis for the behavioural sciences. Hillside. NJ: Lawrence Earlbaum Associates.

Cui, Anna Shaojie, & Wu, Fang. (2017). The Impact of Customer Involvement on New Product Development: Contingent and Substitutive Effects. Journal of Product Innovation Management, 34(1). https://doi.org/10.1111/jpim.12326

Deny, Septian. (2024). Jumlah UMKM Yogyakarta Tembus 340 Ribu, 75% Sudah Go Digital. Retrieved from liputan6 website: https://www.liputan6.com/bisnis/read/5545207/jumlah-umkm-yogyakarta-tembus-340-ribu-75-sudah-go-digital

Dewi, Dita Rimbawati, & Nuswantara, Dian Anita. (2021). Pengaruh Beban Pajak Tangguhan dan Perencanaan Pajak Terhadap Manajemen Laba. INOBIS: Jurnal Inovasi Bisnis Dan Manajemen Indonesia, 4(3). https://doi.org/10.31842/jurnalinobis.v4i3.185

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Diskopukm. (2024). Dinas Koperasi dan UKM DIY menggelar pembukaan fasilitasi sertifikasi halal bagi UKM DIY 2024. Retrieved from diskopukm.jogjaprov.go.id website: https://diskopukm.jogjaprov.go.id/?p=3368

Fornell, Claes, & Larcker, David F. (1981). Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. Journal of Marketing Research, 18(1). https://doi.org/10.1177/002224378101800104

George, Gerard, Zahra, Shaker A., Wheatley, Kathleen K., & Khan, Raihan. (2001). The effects of alliance portfolio characteristics and absorptive capacity on performance A study of biotechnology firms. Journal of High Technology Management Research, 12(2). https://doi.org/10.1016/S1047-8310(01)00037-2

Gopalakrishnan, Shanthi, & Bierly, Paul. (2001). Analyzing innovation adoption using a knowledge-based approach. Journal of Engineering and Technology Management - JET-M, 18(2). https://doi.org/10.1016/S0923-4748(01)00031-5

Grant, Robert M. (1996). Toward a knowledge-based theory of the firm. Strategic Management Journal, 17(S2), 109–122. https://doi.org/10.1002/smj.4250171110

Hair, Joseph Franklin, G. Tomas M. Hult, Christian M. Ringle, & Marko Sarstedt. (2022). A Primer on Partial Least Squares Structural Equation Modeling. In Sage Publishing (1st ed., Vol. 46, pp. 184–185). New York: Sage Publishing.

Hult, G. Tomas M., Morgeson, Forrest V., Morgan, Neil A., Mithas, Sunil, & Fornell, Claes. (2017). Do managers know what their customers think and why? Journal of the Academy of Marketing Science, 45(1). https://doi.org/10.1007/s11747-016-0487-4

Inauen, Matthias, & Schenker-Wicki, Andrea. (2011). The impact of outside-in open innovation on innovation performance. European Journal of Innovation Management, 14(4), 496–520. https://doi.org/10.1108/14601061111174934

Khadka, K., & Maharjan, S. (2017). Customer satisfaction and customer loyalty, Master's Thesis,. Centria University of Applied Sciences, Business Management, Lahti, Finland, (November).

Laursen, Keld, & Salter, Ammon. (2006). Open for innovation: The role of openness in explaining innovation performance among U.K. manufacturing firms. Strategic Management Journal, 27(2). https://doi.org/10.1002/smj.507

Lee, Eun Hwa, Kim, Choo Yeon, & Yoo, Jae Wook. (2020). Relationship between user innovation activities and market performance: Moderated mediating effect of absorptive capacity and ceo's shareholding on innovation performance. Sustainability (Switzerland), 12(24). https://doi.org/10.3390/su122410532

Lestari, Inda, Astuti, Miguna, & Ridwan, Hariyanto. (2019). PENGARUH INOVASI DAN

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

ORIENTASI KEWIRAUSAHAAN TERHADAP KEUNGGULAN BERSAING UMKM KULINER. Jurnal Riset Manajemen Dan Bisnis (JRMB) Fakultas Ekonomi UNIAT, 4(1). https://doi.org/10.36226/jrmb.v4i1.245

Lewin, Arie Y., Massini, Silvia, & Peeters, Carine. (2020). Absorptive capacity, socially enabling mechanisms, and the role of learning from trial and error experiments: A tribute to Dan Levinthal's contribution to international business research. Journal of International Business Studies, Vol. 51. https://doi.org/10.1057/s41267-020-00354-6

Ma, Xiang, Qing, Lingli, Ock, Young Seok, Wu, Jiao, & Zhou, Yaying. (2022). The Effect of Customer Involvement on Green Innovation and the Intermediary Role of Boundary Spanning Capability. Sustainability (Switzerland), 14(13). https://doi.org/10.3390/su14138016

Menon, Tanya, & Pfeffer, Jeffrey. (2003). Valuing internal vs. external knowledge: Explaining the preference for outsiders. Management Science, 49(4). https://doi.org/10.1287/mnsc.49.4.497.14422

Michaelidou, Nina, & Dibb, Sally. (2008). Consumer involvement: a new perspective. The Marketing Review, 8(1). https://doi.org/10.1362/146934708x290403

Morgan, Todd, Obal, Michael, & Anokhin, Sergey. (2018). Customer participation and new product performance: Towards the understanding of the mechanisms and key contingencies. Research Policy, 47(2). https://doi.org/10.1016/j.respol.2018.01.005

Najafi-Tavani, Saeed, Zaefarian, Ghasem, Robson, Matthew J., Naudé, Peter, & Abbasi, Faramarz. (2022). When customer involvement hinders/promotes product innovation performance: The concurrent effect of relationship quality and role ambiguity. Journal of Business Research, 145. https://doi.org/10.1016/j.jbusres.2022.03.001

Nambisan, Satish. (2002). Designing virtual customer environments for new product development: Toward a theory. Academy of Management Review, Vol. 27. https://doi.org/10.5465/AMR.2002.7389914

Pénin, Julien, Hussler, Caroline, & Burger-Helmchen, Thierry. (2011). New shapes and new stakes: a portrait of open innovation as a promising phenomenon. Journal of Innovation Economics & Management, n°7(1). https://doi.org/10.3917/jie.007.0011

Radziwon, Agnieszka, Chesbrough, Henry, Vanhaverbeke, Wim, & West, Joel. (2024). The Future of Open Innovation. In The Oxford Handbook of Open Innovation (pp. 914–934). https://doi.org/10.1093/oxfordhb/9780192899798.013.57

Copyright at authors some right reserved this work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Rangus, Kaja, Drnovšek, Mateja, Di Minin, Alberto, & Spithoven, André. (2017). The role of open innovation and absorptive capacity in innovation performance: empirical evidence from Slovenia. Journal of East European Management Studies, 22(1). https://doi.org/10.5771/0949-6181-2017-1-39

Saldanha, Terence J. V., Mithas, Sunil, & Krishnan, M. S. (2017). Leveraging Customer Involvement for Fueling Innovation: The Role of Relational and Analytical Information Processing Capabilities. MIS Quarterly, 41(1), 367–396. https://doi.org/10.25300/MISQ/2017/41.1.14

Scholastica E, UDEGBE, & Maurice I, UDEGBE. (2013). Impact of Product Development and Innovation on Organisational Performance. International Journal of Management and Sustainability, 2(12). https://doi.org/10.18488/journal.11/2013.2.12/11.12.220.230

Sekaran, Uma, & Bougie, Roger. (2013). Research Methods for Business (6th ed.). United Kingdom: John Wiley & Sons.

Slowinski, Gene, & Sagal, Matthew W. (2010). Good practices in open innovation. Research Technology Management, 53(5). https://doi.org/10.1080/08956308.2010.11657649

Ta'Amnha, Mohammad A., Magableh, Ihab K., Asad, Muzaffar, & Al-Qudah, Shaker. (2023). Open innovation: The missing link between synergetic effect of entrepreneurial orientation and knowledge management over product innovation performance. Journal of Open Innovation: Technology, Market, and Complexity, 9(4), 100147. https://doi.org/10.1016/j.joitmc.2023.100147

Turró, Andreu, Urbano, David, & Peris-Ortiz, Marta. (2014). Culture and innovation: The moderating effect of cultural values on corporate entrepreneurship. Technological Forecasting and Social Change, 88. https://doi.org/10.1016/j.techfore.2013.10.004

Wang, Xuemei, Han, Xu, & Li, Huimin. (2023). The impact of innovation openness on innovation performance of manufacturing corporates –Moderating effect based on knowledge reorganization. Finance Research Letters, 55. https://doi.org/10.1016/j.frl.2023.103917

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