

Innovation as a Mediation to Improve Business Performance with The Antecedents of Technological Ability and Absorptive Capacity

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Abstract. Innovation plays an important role in improving business performance, especially for SMEs facing fierce competition and rapid market changes. Technological capability and absorptive capacity are the main factors that influence how SMEs can innovate and adapt to technological developments and new information. The purpose of this paper is to explore the role of innovation as a mediator in improving SME business performance through the influence of technological capability and absorptive capacity. This study focuses on SMEs in certain regions, with samples taken using the Hair et al., (2018) method and involving a minimum of 100 respondents. The data analysis technique was carried out using SEM-PLS 4.0. The implications of this study indicate that SMEs that are able to develop technological capabilities and strengthen their absorptive capacity will be better able to innovate, which in turn will improve their business performance. This study offers new insights into how innovation can be maximized through optimizing the company's internal capabilities, especially among SMEs, which are rarely discussed in previous studies.

Keyword. Business Performance, Technology Capabilities, Absorptive Capacity

1 Introduction

MSMEs play an important role in national economic development. In addition to contributing to economic growth, this sector is also the main supporter of economic stability in the midst of a crisis. The resilience of MSMEs has proven to be able to face various challenges, including the global economic crisis, while maintaining business continuity and providing jobs for the community. MSMEs not only support economic equality at the local level, but also become the driving force of the regional economy, especially in rural areas and small cities. Research shows that MSMEs are the main drivers of a country's economy. The creative industry, which is dominated by the younger generation, plays a major role in driving economic growth [1]. In addition, MSMEs also play a role in creating jobs, improving people's standard of living, and contributing to the country's foreign exchange through exports. Therefore, strategic steps are needed from the government to advance MSMEs.

Assessing the importance of MSMEs' ability to improve business performance by utilizing information technology as part of innovation. Technology enables companies to increase profits by encouraging continuous learning and the use of knowledge to bring products to market in a timely manner [2]. In addition to technology, knowledge management is also important in innovation. Absorptive capacity or the ability to absorb information can

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be used as a basis for innovation. Well-managed knowledge makes companies more flexible and responsive to changes in the business environment.

The development of food MSMEs in Wonosobo District is very rapid thanks to the empowerment program initiated by the local government. Support for MSME actors is carried out through various initiatives such as technical guidance, training, business coaching, and institutional development. In addition to this support, innovation plays a key role in encouraging improved business performance of MSMEs in Wonosobo District. This innovation is closely related to the use of information technology and absorptive capacity. Through optimal application of technology, Food MSMEs can expand market reach, increase operational efficiency, and adapt to the dynamics of the business environment. Innovation also helps Food MSMEs in Wonosobo District in creating more competitive products or services. The combination of innovation and digitalization allows for increased competitiveness, especially in an era where consumers are increasingly open to technology-based products. Thus, an integrative approach that prioritizes innovation is the key to driving Food MSMEs in Wonosobo District towards better business performance.

Food MSMEs in Wonosobo District must be able to innovate and improve product quality to remain competitive with competitors, both from local business actors and large industrial products. In facing increasingly tight competition, food SMEs need to prioritize uniqueness, such as regional flavors, attractive packaging, and effective marketing strategies. By utilizing information technology, SMEs can expand their market reach, reach consumers more widely, and maintain competitiveness amidst various market challenges.

Business performance is a measure of how effective and efficient an organization is in achieving its goals and objectives [3]. This performance can be measured through various indicators that include the financial, operational, and strategic aspects of the organization. Financial indicators usually include profit, revenue, return on investment (ROI), and profit margin, which reflect how well the company manages resources to generate profits. Meanwhile, operational indicators include production efficiency, customer satisfaction, and the company's ability to maintain the quality and delivery time of products or services. Business performance is also influenced by external factors such as market conditions, competition, and regulations, as well as internal factors such as managerial strategy, organizational structure, and corporate culture. Information technology refers to the process of exchanging data and information without being hindered by space and time constraints. It can also be understood as a collection of tools that include hardware, information theory, data networks, workstations, and artificial intelligence (such as robotics), which are used in a systematic process to carry out various activities [4]. Information technology is defined as a series of tools used by an organization to produce, process, and disseminate information in various forms. Therefore, information technology plays an important role in supporting company operations in an efficient and effective manner. This technology also plays a role in reducing business operational costs, especially for SMEs, allowing them to allocate budgets to other more important areas [5].

Absorptive capacity is a concept that describes an organization's ability to identify, assimilate, and apply relevant external knowledge, which is then integrated with existing knowledge within the organization [6]. This process not only involves collecting new information, but also the ability to process that knowledge so that it can be used to improve the organization's performance and competitiveness. An organization with a high absorptive capacity can utilize external knowledge more effectively and efficiently, which in turn supports new product development, process improvement, and innovation in various operational and strategic aspects.

The importance of absorptive capacity in an organization is especially seen in the context of innovation and adaptation to environmental changes. Organizations that are able to absorb and process new knowledge will have an advantage in creating more innovative and responsive solutions to ever-changing market demands. Knowledge adopted from outside the organization, whether from research results, industry experience, or collaboration with external parties, can help organizations overcome existing challenges and create new opportunities that can strengthen their competitive position in the market [7]. Therefore, absorptive capacity is often considered a crucial element in supporting the continuous innovation process and ensuring that organizations remain relevant in a competitive global market.

Innovation refers to the attitude of an entrepreneur who is creatively involved in experimenting with new ideas, which allows the creation of new production methods and produces new products or services, both for existing and future markets [8]. Innovation is the introduction of something new that reflects the success of an update, resulting in better improvements. Innovation can also be viewed as the application, combination, or synthesis of original and relevant scientific knowledge, new valuable products, processes, or services. Although innovation often involves creativity, the two are not always identical. Innovation includes creative actions or ideas that create clear and significant differences in the domain where the innovation is applied. In addition, innovation also means the transformation of knowledge into new products or services designed to meet customer needs. Innovation involves technical, physical, and knowledge processes aimed at developing products. In the context of a company, innovation plays an important role in creating new value propositions through various activities, such as offering new products or services, adopting more efficient organizational and operational practices, providing technological solutions, or developing new skills and competencies. Innovation can also strengthen the skills and knowledge needed to master, optimize, and improve existing technology, as well as to create something completely new.

This study will examine the relationship between the use of information technology and the absorptive capacity of MSMEs in Wonosobo District. With the many resources and business actors in this area, the opportunity to increase income and absorb more workers should be utilized properly. Based on the description above, this focuses on "Innovation as a Mediation to Improve Business Performance with Technological Capabilities and Absorptive Capacity in Food MSMEs in Wonosobo District."

2 Literature Review

2.1 Information Technology

Information technology encompasses the ability to process, edit, store, and modify data to produce high-quality, useful, effective, and efficient information [9]. The adoption of information technology is essential for improving the performance of SMEs. It has become a critical decision for SME actors, particularly for millennial-driven businesses such as coffee shops and other enterprises with complex operational activities. Business owners and executives with IT expertise are a source of competitive advantage and play a key role in enhancing efficiency and effectiveness.

Research by [10] indicates that information technology positively and significantly influences business performance. Similarly, findings from [11] demonstrate that companies that effectively manage and utilize IT are better equipped to adapt to market changes, highlighting a positive and significant impact on business performance.

However, contrasting findings are presented by [12], who report a negative and significant effect of IT capabilities on business performance. Despite this, [13] have confirmed a positive relationship between IT and business performance, aligning with [10] view that IT capabilities offer a competitive edge by enhancing efficiency and effectiveness.

[11] also emphasize that companies managing IT effectively are more responsive to market changes, which strengthens their market position. Thus, it is crucial for businesses to continuously develop their IT capabilities, as this facilitates quicker responses to market dynamics, drives ongoing efficiency, fosters innovation, and ultimately enhances competitiveness and overall business performance.

2.2 Absorptive Capacity

Absorptive Capacity refers to a company's ability to effectively respond to external knowledge by filtering and utilizing it to benefit the organization. This capacity is shaped by the company's prior experiences and knowledge base. It also determines how open a company is to adopting innovations and new knowledge, making it a critical factor for gaining a competitive edge within the industry.

This capability develops cumulatively, building on existing knowledge at both the organizational and employee levels. The ability of employees to share knowledge internally plays a crucial role, as it allows others within the organization to access that knowledge and fosters the development of new innovations. However, many small and medium-sized enterprises (SMEs) are often less prepared to adapt to digitalization. These businesses tend to be reactive rather than proactive, with minimal strategic planning due to limited resources, insufficient digital management skills, and traditional mindsets that can hinder their dynamic capabilities.

Networks can support SMEs by expanding their international business reach, despite resource constraints that often pose challenges to internationalization [14]. Collaborative partnerships also offer opportunities for companies to acquire knowledge from partners, facilitating the exchange of information that enhances absorptive capacity and drives innovation [15].

Numerous studies highlight the positive and significant impact of absorptive capacity on business performance. For instance, research by [16] demonstrates this relationship, while [17] show that absorptive capacity positively influences innovation. Similarly, [18] found that the ability of SMEs to innovate depends on how effectively they absorb relevant knowledge and information.

2.3 Innovation

Innovation refers to the introduction of new ideas, products, or methods that offer added value or address existing problems. It can also be defined as an effort to enhance or improve something already in place, with the aim of increasing efficiency, effectiveness, or user experience. Innovation may involve changes in technology, processes, or mindsets that lead to new benefits or improvements to existing ones [19]. current literature, innovation is widely regarded as a critical capability for companies to gain competitive advantages and achieve better business performance.

The deeper the understanding of innovation by individuals or organizations, the greater their likelihood of successfully innovating. This suggests that innovation is a blend of outcomes, processes, and mindsets, where results are achieved through an innovation process driven by an innovative mindset. In the context of entrepreneurship, innovation plays a vital role and is defined as the process of implementing new ideas to solve problems. This process

includes the development, adoption, and execution of new ideas, products, processes, or services [20]. Success in achieving innovation often stems from employees' efforts, demonstrating an entrepreneurial goal to improve business performance, particularly for MSMEs.

Research by [21] and [22] highlights that product innovation has a positive and significant impact on MSME performance. However, contrasting findings from [23] show that product innovation did not yield a significant positive effect.

Overall, innovation is a process of introducing new methods or ideas to add value and enhance performance. It plays a crucial role in entrepreneurship by enabling businesses to maintain competitiveness and drive sustainable innovation for long-term success.

2.4 Business Performance

Business performance is work achievement or work results that are closely related to the strategic goals of the organization, customer satisfaction, and contribute to the economy. In measuring performance, the aim is to find out the results achieved by the company within a certain period of time. Business performance is a strategy based on an entrepreneurial orientation that requires capital resources to develop and test new ideas, seek new market opportunities and position strategies in predetermined markets [24].

Business performance or capability is a top-down approach that helps executives understand the processes needed to achieve strategic goals and then measure the effectiveness of those processes to obtain the expected results. It can be understood that business capability collects processes that help companies optimize their business performance to ensure the achievement of company goals [25].

3 Research Methods

The study was conducted on food MSMEs in Wonosobo City, with data collected using questionnaires. A quantitative research approach was employed in this study. According to [26], quantitative research is a method grounded in the philosophy of positivism, designed to investigate specific populations or samples. Sampling is typically done randomly, data collection utilizes research instruments, and data analysis involves quantitative or statistical techniques to test the formulated hypotheses.

3.1 Population

A Population refers to the entire group of subjects or objects that are the focus of a study. [27] defines a population as a generalized area comprising objects or subjects with specific qualities and characteristics determined by the researcher for investigation, leading to the formulation of conclusions. The population in this study consists of MSME actors in Wonosobo District.

3.2 Sampel

A sampel represents a subset of the population, reflecting its characteristics [27]. This study employed a non-probability sampling method with a purposive sampling technique. Data analysis was conducted using SmartPLS SEM (Partial Least Square - Structural Equation Modeling) software. According to [28], the appropriate sample size for SEM analysis ranges between 100 and 200.

[29] explains that the PLS method can describe latent variables—variables that are not directly measurable—by utilizing indicators. PLS-SEM is used to examine predictive relationships between constructs by assessing their interactions or influences. As a predictive model, PLS does not require specific distribution assumptions for parameter estimation, eliminating the need for parametric techniques in significance testing and instead relying on a non-parametric evaluation model. The evaluation of the PLS model involves analyzing the outer model and inner model.

In this study, responses were measured using a five-point Likert scale, with the sample consisting of 65 food MSME actors in Wonosobo District.

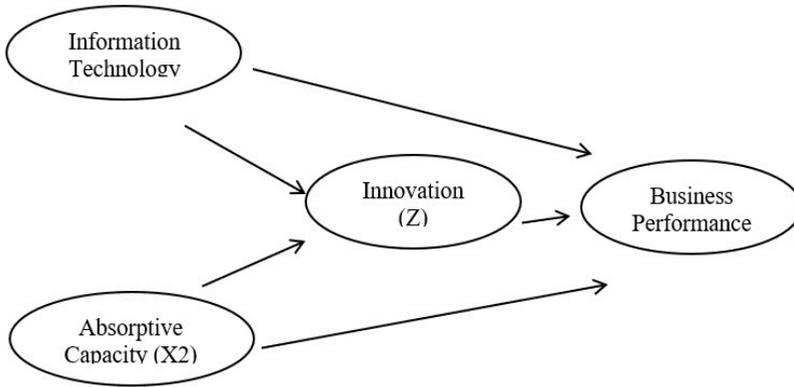


Fig 1. Research Framework

4 Result and Discussion

The first stage in the analysis using Partial Least Square is to test the outer model or measurement model. The technique used to analyze the outer model is the PLS algorithm. In this study, the outer model was tested using convergent validity tests, discriminant validity tests, reliability tests, and formative construct tests. The PLS software used is SmartPLS version 4.0 by Hair et al which is downloaded via www.smartpls.com.

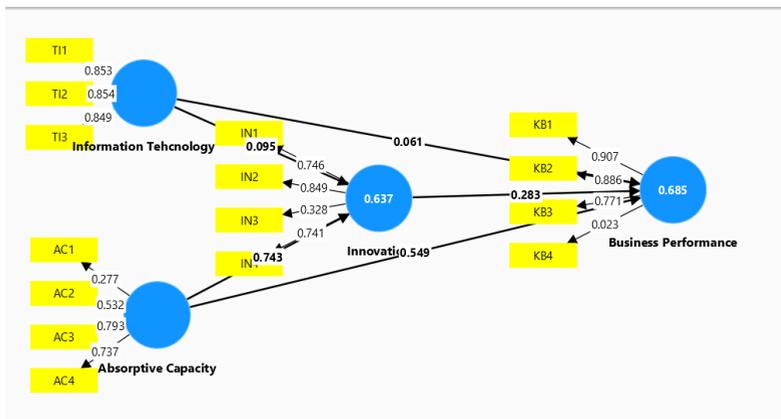


Fig. 2 Output of PLS Software

The test results show that all variable items have a loading factor value > 0.5 so it can be concluded that the indicators used in this study are valid. Based on Table 3, it can be seen that all variables produce an Average Variance Extracted (AVE) value greater than 0.5 so it can be concluded that all indicators are valid.

4.1 Convergent Validity Test Result

The subsequent test for convergent validity involves determining the Average Variance Extracted (AVE) value. AVE measures the proportion of variance captured by a construct compared to the variance caused by measurement errors. This value is calculated using the PLS algorithm. A variable is considered valid if its AVE value exceeds 0.5 [30], [31], [32], [33]. The results of the AVE calculation are presented in the table.

4.2 AVE Measurement Result

Table 1. AVE Measurement

Variable	AVE
Absorptive Capacity	0,680
Business Performance	0,735
Information Technology	0,726
Innovation	0,638

From the table above, all variables with reflective indicators have an AVE value of more than 0.5. It can be said that all of these variables are valid.

4.3 Reability (Cronbach Alpha and Composite Reability)

Table 2. Realibilitas (Cronbach’s Alpha and Composite Reability)

	Cronbach’s Alpha	Composite Reability	Result
Abosorptive Capacity	0,529	0,529	Reliable
Business Performance	0,819	0,850	Valid
Information Technology	0,812	0,818	Valid
Innovation	0,715	0,735	Valid

Based on Table 4, the results of the reliability test produced a value above 0.6 using the Cronbach's Alpha value to prove that this study uses reliable measurements.

4.4 R-Square

Table 3. R-Square Test

	R-Square	R-Sqare Adjusted
Bussiness Performance	0,685	0,669
Innovation	0,637	0,625

4.5 Discriminant Validity

The calculation results indicate that the model’s R-square value is 0.671. This R-square value is compared with the square root of the AVE. The AVE square root can be calculated manually or observed in the Fornell-Larcker table generated from the model’s calculation using the PLS algorithm. The Fornell-Larcker criterion values are presented in Table 4.5.

Table 4. Discriminant Validity

	Absorptive Capacity	Business Performance	Information Technology	Innovation
Absorptive Capacity	0,824			
Business Performance	0,758	0,857		
Information Technology	0,388	0,496	0,852	
Innovation	0,654	0,718	0,559	0,799

The Fornell-Larcker criterion table presents the AVE root value for each construct or variable, which is displayed in bold numbers. The AVE root value is compared with the R-square value of the model, which is known to be 0.671. Based on table 4.5, it can be seen that the AVE root score of each variable is higher than the R-square value. Therefore, all variables are declared valid and can be used for further analysis.

Table 5. Hypothesis Test

Kode	Hypotesis	Path Coefisient	T-Statistic	P-Values	Conclusion
H1	Information Technology to Business Performance	0,070	0,462	0,644	Positive and insignificant
H2	Absorptive Capacity to Business Performance	0,675	5,439	0,000	Positive and significant
H3	Information Technology to Innovation	0,754	1,469	0,142	Negatif and insignificant
H4	Absorptive Capacity to Innovation	0,357	3,839	0,000	Positive and significant
H5	Business Performance to Innovation	0,589	7,307	0,000	Positive and significant
H6	Information Technology to Bussines Performance mediator Innovation	0,642	0,456	0,649	Positive and significant
H7	Absorptive Capacity to Bussines Performance mediator Innovation	0,409	0,353	0,000	Negative and insignificant

4.6 Hypothesis Testing Result

- Hypothesis 1 (H1):** The variable of information technology has a positive but insignificant effect on business performance. This is indicated by a t-statistic of 0.462 (<1.96) and a p-value of 0.644 (>0.05), leading to the rejection of H1.

2. **Hypothesis 2 (H2):** The absorptive capacity variable has a positive and significant effect on business performance, with a t-statistic of 5.439 (>1.96) and a p-value of 0.000 (<0.05), meaning H2 is accepted.
3. **Hypothesis 3 (H3):** The variable of information technology has a negative and insignificant effect on innovation, as shown by a t-statistic of 1.469 (<1.96) and a p-value of 0.142 (>0.05), resulting in the rejection of H3.
4. **Hypothesis 4 (H4):** The absorptive capacity variable has a positive and significant effect on innovation, with a t-statistic of 3.839 (>1.96) and a p-value of 0.000 (<0.05), leading to the acceptance of H4.
5. **Hypothesis 5 (H5):** Business performance has a positive and significant influence on innovation, supported by a t-statistic of 7.307 (>1.96) and a p-value of 0.000 (<0.05), confirming H5.
6. **Hypothesis 6 (H6):** The information technology variable positively but insignificantly influences business performance through innovation, as indicated by a t-statistic of 0.456 (<1.96) and a p-value of 0.649 (>0.05), resulting in the rejection of H6.
7. **Hypothesis 7 (H7):** The absorptive capacity variable positively and significantly influences business performance through innovation, evidenced by a t-statistic of 4.353 (>1.96) and a p-value of 0.000 (<0.05), leading to the acceptance of H7.

4.7 Analysis of Result

1. **Technological Capabilities and Business Performance:**
The first hypothesis (H1) reveals that technological capabilities do not significantly influence the business performance of MSMEs in Wonosobo District. These findings are inconsistent with studies by [34], [35], [36] but align with [37]. According to [37] the impact of technological capabilities on performance depends on proper alignment with business strategy.
2. **Absorptive Capacity and Business Performance:**
Hypothesis 2 (H2) indicates that absorptive capacity significantly improves business performance among food MSMEs in Wonosobo District. These results support previous studies by [38], [39], [40], [41].
3. **Innovation and Business Performance:**
Hypothesis 5 (H5) highlights that innovation mediates the relationship between technological capabilities and absorptive capacity with business performance in food MSMEs. These findings align with studies by [42], [43], [44], [45].
4. **Mediating Role of Innovation**
 - a. **Technological Capabilities:**
Hypothesis 6 (H6) demonstrates that innovation mediates the relationship between technological capabilities and business performance, albeit insignificantly, among food MSMEs in Wonosobo District.
 - b. **Absorptive Capacity:**
Hypothesis 7 (H7) shows that innovation significantly mediates the relationship between absorptive capacity and business performance in the same context.

5 Conclusion and Implication

We would like to thank all parties who have provided support in the implementation of this research. In particular, we would like to thank the University of Science and Al-Qur'an for the assistance and facilities provided during the research process.

The authors' contributions to this research are divided as follows: Alifa Aurel Fairusja is responsible for the research design, data collection, and analysis of the results; Alfayab Bayu Aji developed the theoretical framework and compiled the research methodology; Muhammad Gilang Maulana Azka interpreted the results and compiled the final manuscript. All authors have read and approved the submitted manuscript.

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