

THE IMPACT OF ENTREPRENEURSHIP ECOSYSTEM AND SUSTAINABLE DIGITAL INNOVATION ON BUSINESS PERFORMANCE (CASE STUDY OF 150 MSMEs IN SINGARAJA, INDONESIA)

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ABSTRACT

Technology digital development and globalization dynamics in recent decades have brought significant changes to the business landscape, especially in the micro, small, and medium enterprises (MSMEs) sector. In Indonesia, especially in developing areas such as Singaraja, Bali Province, the implementation of a digital innovation-based entrepreneurial ecosystem still faces various challenges. This study aims to analyze the impact of the entrepreneurial ecosystem and sustainable digital innovation on business performance in Singaraja, Indonesia. This study uses a quantitative approach with purposive sampling with a survey method of 150 MSMEs. Data were analyzed using Structural Equation Modeling (SEM) based on Partial Least Squares (PLS). The results of the study indicate that the entrepreneurial ecosystem has a positive and significant effect on sustainable digital innovation and business performance. These findings underline the importance of building a sustainable digital innovation-based business ecosystem to improve the competitiveness of MSMEs in the digital era. However, practical implications and future research directions need to be discussed in depth.

Keywords: entrepreneurial ecosystem, sustainable digital innovation, business performance, MSMEs, Singaraja

INTRODUCTION

In today's digital economy era, the entrepreneurial ecosystem has become a key factor in driving business growth, especially in the micro, small and medium enterprises (MSMEs) sector. This ecosystem includes various actors such as government, educational institutions, financial institutions, and technological infrastructure that interact with each other to create a conducive business performance environment. Business performance is influenced by many factors, including internal company factors such as management strategy and innovation, as well as external factors such as market conditions and ecosystem support. Business performance refers to the effectiveness and efficiency of a company in achieving financial and non-financial goals. Performance indicators include revenue growth, profitability, market share, and customer satisfaction (Venkatraman & Ramanujam, 1986). According to Stam (2015), the entrepreneurial ecosystem functions optimally when there is positive interaction between these elements, which encourages business innovation and scalability. A supportive environment like this allows entrepreneurs to access the resources needed for business growth and sustainability. On the other hand, sustainable digital innovation is an inevitable need in facing rapidly changing market dynamics. Digital innovation is not only related to the adoption of new technologies, but also about the ability of businesses to consistently develop technology-based products, services, and business models in a sustainable manner. Sustainable digital innovation contributes to improving business performance through operational efficiency, increasing customer value, and creating new business models (Susanti et al., 2020). According to Nambisan et al., (2017) sustainable digital innovation refers to the continuous process of developing information technology-based solutions that are not only innovative but can also support long-term business sustainability. This includes the use of new technologies such as cloud computing, big data analytics, Internet of Things (IoT), and artificial intelligence (AI).

The development of digital technology is changing the global business landscape, driving the need for sustainable innovation adaptation in the entrepreneurial ecosystem. The entrepreneurial ecosystem encourages sustainable digital innovation by providing an environment that supports creativity and technology adoption (Autio et al., 2018). According to Isenberg (2011), a healthy entrepreneurial ecosystem is able to create a conducive environment for business growth and the entrepreneurial ecosystem refers to an interactive network between business actors, supporting institutions, government, academic communities, and capital providers that together create an environment that supports the birth and development of business innovation. In Indonesia, especially in small cities like Singaraja, the development of this ecosystem is crucial to support MSMEs which are the backbone of the local economy (BPS, 2023). Although the local government has made efforts to build technological infrastructure and introduce entrepreneurship development programs, the level of technology adoption among MSMEs is still relatively low. Singaraja, as the center of economic growth in North Bali, shows significant development in the field of entrepreneurship. However, there are still challenges in terms of competitiveness and business innovation, especially among MSMEs. Therefore, it is important to examine how the entrepreneurial ecosystem in this area supports sustainable digital innovation, and to what extent these two factors affect business performance so that this study aims to empirically examine how the entrepreneurial ecosystem and sustainable digital innovation affect business performance in Singaraja and open up opportunities for comparative studies in other regions. Thus, strengthening sustainable digital innovation in the entrepreneurial ecosystem is expected to improve business performance as a whole.

Problem Identification

The problem formulation studied in this study is: (1) How does the entrepreneurial ecosystem influence sustainable digital innovation in Singaraja? (2) How does sustainable digital innovation influence business performance in Singaraja? (3) What is the mediating role of sustainable digital innovation in the relationship between the entrepreneurial ecosystem and business performance?

Research Objectives

The following are the research objectives to be achieved, including: (1) Analyzing the influence of the entrepreneurial ecosystem on sustainable digital innovation in Singaraja. (2) Analyzing the influence of sustainable digital innovation on business performance in Singaraja. (3) Knowing the role of sustainable digital innovation as a mediator.

LITERATURE REVIEW

The entrepreneurial ecosystem consists of various elements such as government regulations, market access, human resources, infrastructure, education, and entrepreneurial culture. A study by Faizah (2024) showed that in Sleman, Yogyakarta, factors such as market access, human resources, and government regulations and infrastructure have a significant influence on the perception and success of entrepreneurs. However, education and training, and culture did not show a significant influence in this context. In Bali, Suardhika et al. (2010) found that the integration of strategic resources, entrepreneurial orientation, and environmental dynamics play an important role in competitive strategy and business performance. This emphasizes the importance of adapting to a dynamic business environment to improve MSME performance. Research by Jan S.Q et al. (2025) acknowledges that the entrepreneurial ecosystem (entrepreneurship education, entrepreneurial culture, government support, and social support) and sustainable digital innovation play an important role in influencing sustainable business performance. Furthermore, sustainable digital innovation plays a positive mediating role between the entrepreneurial ecosystem and business sustainability. This study reveals that business sustainability increases along with the positive role of various dimensions of the entrepreneurial ecosystem. Sustainable digital innovation refers to the use of digital technology that takes into account economic, social, and environmental sustainability aspects. Research by Wahdi (2022) on MSMEs in the food and beverage sector shows that digital innovation and entrepreneurial competence contribute to competitive advantage and business resilience during the COVID-19 pandemic.

According to Yoo et al. (2010), digital innovation increases the flexibility and adaptive capacity of businesses in facing dynamic market changes. In Polewali Mandar, West Sulawesi, a study by Fitri and Halik (2023) revealed that product innovation had a significant positive effect on the sustainable business performance of agribusiness MSMEs, while digital marketing did not show a significant effect. This highlights the importance of product innovation in the context of business sustainability. The COVID-19 pandemic has accelerated digital transformation among MSMEs. Fathoni and Asfiah (2023) noted that MSMEs in Indonesia have experienced an increase in the adoption of digital technologies such as e-commerce and social media to maintain business continuity. However, challenges such as limited technological infrastructure and digital literacy are still major obstacles. In Singaraja, Buleleng Regency, collaboration between the local government and start-up companies such as Samsung Mobile and PT.

Invelli Solusindo has launched a digital ecosystem to support MSMEs. This initiative aims to improve financial governance, business, and cooperative development through a digital platform.

Integration between a supportive entrepreneurial ecosystem and sustainable digital innovation can improve MSMEs business performance. A study by Primadhita et al. (2023) showed that digital marketing, product quality, and green innovation have a significant effect on the performance of food and beverage MSMEs in Bogor and Karawang. In addition, digital innovation training and socialization programs, such as those conducted by Sari and Febrian (2023), can improve the understanding and skills of MSMEs actors in implementing business digitalization, thereby expanding market reach and increasing operational efficiency. Thus, the literature shows that a conducive entrepreneurial ecosystem and the adoption of sustainable digital innovation play an important role in improving MSMEs business performance. In Singaraja, integration between government support, digital infrastructure, and innovation training can strengthen MSMEs competitiveness. However, challenges such as digital literacy and access to technology need to be addressed through collaboration between the government, private sector, and academics.

METHOD, DATA, AND ANALYSIS

Method (Research Design)

This study uses a quantitative approach with a survey method that aims to test the causal relationship between the entrepreneurial ecosystem, sustainable digital innovation, and business performance among SMEs in Singaraja. The research method used is a quantitative approach through a survey with an analysis model using structural equations (PLS-SEM).

Data (Population and Sample)

The population is MSMEs registered with the Cooperative and MSMEs Service of Singaraja, Buleleng Regency with a sample of 150 MSMEs selected with the following criteria: (1) business actors who have been running a business for at least 2 years, (2) utilizing digital technology in operational activities, (3) located in the Singaraja area. This study was conducted using a sampling technique using purposive sampling that meets the criteria.

Analysis (Data Collection and Data Analysis)

This study uses a research instrument in the form of a questionnaire based on a 5-point Likert scale (1= Strongly Disagree to 5= Strongly Agree). The questionnaire instrument consists of: 3 items for the entrepreneurial ecosystem, 3 items for sustainable digital innovation, and 3 items for business performance (Jan S.Q et al.; 2025). Data were analyzed using SmartPLS 4.0 for validity, reliability, path analysis, and mediation tests. The following are the questionnaire indicators used in Table 1.

Furthermore, the data was analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method with the help of SmartPLS 4 software. The analysis steps carried out were: (1) Validity and Reliability Test with convergent validity (Average Variance Extracted ≥ 0.5) and construct reliability (Composite Reliability ≥ 0.7); (2) Structural Model Test with Path coefficient value, R-square; (3) Significance test (bootstrapping) through a mediation test that shows the analysis of the mediation role of sustainable digital innovation.

Table 1. Questionnaire Indicators (Jan S.Q et al.; 2025)

Variable	Indicators	Statements
Entrepreneurship Ecosystem (EK)	EK1	Digital infrastructure in Singaraja supports my business.
	EK2	Support from the local government facilitates the development of my business.
	EK3	Collaboration with other businesses accelerates innovation in my business.
Sustainable Digital Innovation (ID)	ID1	My business actively adopts new technologies for daily operations.
	ID2	I use digital platforms to reach new customers.
	ID3	I implement technology-based eco-friendly solutions.
Business Performance (KB)	KB1	My business revenue has increased in the past 1 year.
	KB2	The number of new customers has increased after the digital transformation.
	KB3	Customer satisfaction with digital services has increased.

RESULT AND DISCUSSION

Data Analysis Results

Descriptive Statistics

Table 2 presents the descriptive statistics of the respondents' business characteristics. In terms of business age, the majority of respondents operated businesses that were relatively new. As many as 80 businesses (53.3%) had been established for less than five years, indicating a strong representation of early-stage enterprises. A further 50 businesses (33.3%) had been operating between five to ten years, while only 20 businesses (13.4%) were more mature with more than ten years of operation. These findings suggest that most of the businesses are still in the growth or consolidation stage, with a smaller portion representing long-standing enterprises.

Table 2. Descriptive Statistics Results

Characteristics	Amount (n=150)	Percentage (%)
Business Age		
< 5 years	80	53.3%
5-10 years	50	33.3%
>10 years	20	13.4%
Business Sector		
Culinary	60	40%
Fashion	30	20%
Crafts	40	26.7%
Services	20	13.3%

Regarding the business sector, the distribution shows a dominance of the culinary sector, which accounted for 60 businesses (40%) of the sample. This was followed by the craft sector with 40 businesses (26.7%), while the fashion sector represented 30 businesses (20%). The services sector made up the smallest proportion, with 20 businesses (13.3%). This distribution reflects a concentration in consumer-oriented sectors such as culinary and crafts, which are often characterized by relatively low barriers to entry and

high demand in local markets. Overall, the data highlights that most respondents were relatively new entrepreneurs concentrated in culinary and creative industries, aligning with common patterns of micro, small, and medium enterprises (MSMEs) in developing regions.

Measurement Model (Validity and Reliability Test)

According to Hair et al. (2017) that the validity and reliability test must meet the requirements and criteria. All indicators in the questionnaire show validity and reliability results that meet the requirements: (1) Average Variance Extracted (AVE) > 0.5 for all constructs, (2) Composite Reliability (CR) > 0.7 for all constructs, (3) Cronbach's Alpha > 0.7 for all constructs. The following are the results of the validity and reliability tests in Table 3.

Table 3. Validity and Reliability Test Results

Variable	AVE	CR	Cronbach's Alpha
Entrepreneurship Ecosystem	0.672	0.897	0.861
Sustainable Digital Innovation	0.711	0.912	0.876
Business Performance	0.693	0.885	0.843

Structural Model (Path Analysis)

The results of path analysis are used to determine the relationship between variables. The results of this study indicate that each variable has a significant relationship between variables. The following are the results of the hypothesis test in Table 4.

Table 4. Hypothesis Test Results

Hypothesis	Path Coefficient (β)	T-Statistic	P-Value	Description
H1: Entrepreneurship Ecosystem Influences Sustainable Digital Innovation (EK \rightarrow ID)	0,482	7,623	0,001	Significant
H2: Sustainable Digital Innovation Influences Business Performance (ID \rightarrow KP)	0,529	8,147	0,001	Significant
H3: Entrepreneurship Ecosystem Influences Business Performance mediated by Sustainable Digital Innovation (EK \rightarrow ID \rightarrow KP)	0,216	3,104	0,002	Significant

The results of the R² Values in this study are Digital Innovation of 0.375 and Business Performance: 0.458.

Mediation Test

The bootstrapping results show that sustainable digital innovation partially mediates the relationship between entrepreneurial ecosystem and business performance, with a significant mediation effect (p-value 0.001).

Discussion

The results of this study prove that a strong entrepreneurial ecosystem in Singaraja contributes positively to sustainable digital innovation. Local government support strengthens the adoption of new technologies, which ultimately increases customer growth and revenue. The results of this study prove that a strong entrepreneurial ecosystem in Singaraja, supported by good digital infrastructure and business collaboration, contributes positively to sustainable digital innovation. Local government support in the MSMEs digitalization program strengthens the adoption of new technologies, in accordance with the findings of Zahra & Nambisan (2012). The implementation of digital innovation, such as e-commerce and simple AI-based digital marketing, increases customer growth and revenue.

The results of the study show that sustainable digital innovation has a significant impact on business performance. In accordance with the results of the study by Susanti et al. (2020), sustainable digital innovation makes a positive contribution to increasing productivity, efficiency, and competitive advantage. In Singaraja, the use of digital technology expands the MSMEs market and increases customer satisfaction.

The results of the study show that sustainable digital innovation plays a mediating role in the entrepreneurial ecosystem towards business performance. Digital innovation serves as a bridge between ecosystem support and business performance achievement. In other words, a strong entrepreneurial ecosystem does not necessarily improve performance without the adoption of digital innovation. These results are consistent with the findings of Autio et al. (2018), Nambisan et al. (2017), and Jan S.Q et al. (2025) which state that a conducive entrepreneurial ecosystem encourages innovation and improves business performance

CONCLUSION

A strong entrepreneurial ecosystem and the implementation of sustainable digital innovation have a significant impact on improving the business performance of MSMEs in Singaraja. This study proves that: (1) The entrepreneurial ecosystem has a positive and significant influence on sustainable digital innovation among MSMEs in Singaraja, (2) Sustainable digital innovation contributes significantly to improving business performance, and (3) Sustainable digital innovation also mediates the relationship between the entrepreneurial ecosystem and business performance, strengthening the positive impacts caused. Thus, the success of business performance in the digital era depends not only on the condition of the entrepreneurial ecosystem, but also on the business's ability to carry out sustainable digital innovation.

IMPLICATION/LIMITATION AND SUGGESTIONS

The implications of this study are that the government needs to develop business incubation programs, MSMEs digitalization and programs to support the development of technology-based entrepreneurial ecosystems in the regions, while business actors are encouraged to adopt the latest technology sustainably and innovate to remain competitive, then for academics that the results of this study can be the basis for further research in developing local ecosystem-based business innovation models. This study has limitations in the relatively small number of samples and a limited geographic focus on Singaraja. Further research is expected to expand the scope of the region and consider other external factors such as global market dynamics and changes in national policies.

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