

The Role of Collaboration in Overcoming MSME Challenges: Model Analysis to Improve Competitiveness and Sustainability

Sandi Setiadi¹, Alhidayatullah², Rizky Maulana³

^{1,3}Universitas Linggabuana PGRI Sukabumi, Indonesia

²Universitas Muhammadiyah Sukabumi, Indonesia

Email: setiadi442976@gmail.com

Abstract

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in regional economic development, but still face various challenges related to business sustainability amid market uncertainty and global competition. This study aims to analyze the role of collaboration in overcoming MSME challenges through its relationship with competitiveness, business policies, and business sustainability. The study uses a mixed approach, where quantitative data is analyzed using PLS-SEM, while qualitative data is obtained through interviews and focus group discussions (FGD) with MSME actors in Sukabumi Regency. The results show that collaboration and competitiveness have a positive effect on business sustainability, with business policy acting as a mediator that strengthens this relationship. Qualitative findings confirm that collaboration provides tangible benefits in the form of access to resources, innovation, and market networks, while competitiveness is built through product innovation, differentiation, and consistency in quality, which are translated into adaptive business policies. This study contributes to strengthening the Resource-Based View, Dynamic Capability, Stakeholder, and Institutional theories, while also providing practical implications for MSME actors, policymakers, and stakeholders in designing strategies to strengthen MSME sustainability systematically.

Keywords: *Collaboration; Competitiveness; Business Policy; SME Sustainability.*



A. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of the economy in many developing countries, including Indonesia. Based on data from the Ministry of Cooperatives and SMEs (2023), MSMEs in Indonesia account for more than 99% of business units and employ around 97% of the national workforce. In addition, their contribution to the national Gross Domestic Product (GDP) reaches 61.07%. This fact reinforces the strategic position of MSMEs in creating economic growth, expanding employment, and reducing economic disparities between regions. However, MSMEs face various serious challenges in running their businesses. Various classic problems such as limited access to financing, low technology adoption, limited managerial capacity, low competitiveness, and limited access to markets and business networks are the main obstacles to the sustainability of MSMEs. Furthermore, in the post-COVID-19 pandemic situation and the era of digital disruption, these challenges have become increasingly complex and require a collaborative, adaptive, and innovative approach to ensure long-term business sustainability (Fainshtein et al., 2023).

Collaboration has emerged as a strategic approach believed to help SMEs overcome these challenges. In this context, collaboration includes cooperation between business actors, between MSMEs and large companies (vertical partnerships), as well as cooperation with educational institutions, government, communities, and financial institutions (cross-sector collaboration). Collaboration can expand the innovative capabilities of MSMEs, accelerate the adoption of new technologies, and open access to wider markets. Collaboration also enables the transfer of knowledge and innovation between partners, which plays an important role in creating long-term competitive advantages. In a study by Sindhwani et al. (2022), it is stated that MSMEs that actively collaborate are twice as likely to survive in the first five years compared to those that operate individually.

The challenge of competitiveness is a major focus in SME development, especially in the era of globalization and free markets. Competitiveness is not only determined by internal efficiency, but also by a company's ability to develop differentiation strategies, market access, and product innovation (Ni et al., 2020). In the context of SMEs, barriers to innovation often arise from limited resources and networks. This is where collaboration becomes relevant, as it can be a means of sharing resources and reducing innovation costs (He et al., 2020). Collaboration in the form of consortiums or business partnerships also enables MSMEs to compete in large tenders, joint exports, or integrated digitization schemes that were previously difficult to do individually.

Business sustainability is also an important dimension that is gaining attention. The concept of sustainability in the context of MSMEs is not only related to the environment, but also includes financial, social, and organizational sustainability. This approach is not only environmentally friendly but also provides economic benefits for MSME players. MSMEs that adopt strategic collaboration in their business models show more sustainable growth patterns (Adomako, 2020). However, the implementation of collaboration in MSMEs does not necessarily run smoothly. Various obstacles, such as low trust among business actors, differences in organizational culture, and information asymmetry, often hinder the establishment of productive partnerships. In addition, the absence of a standardized collaboration model that is relevant to the local context is also a problem.

In this context, a collaboration model is needed that can address the real challenges faced by MSMEs while strengthening their competitiveness and sustainability. This model must consider internal aspects of MSMEs such as managerial capacity, organizational structure, and entrepreneurial orientation, as well as external aspects such as ecosystem support, regulations, and partnerships with other stakeholders. A risk and uncertainty-based approach to designing adaptive and resilient business models for MSMEs (Swatdikun et al., 2024). In Indonesia, the partnership program between MSMEs and state-owned enterprises (BUMN) through the Partnership and Community Development Program (PKBL) is an example of formal collaboration that can be replicated and expanded.

This study aims to analyze in depth the role of collaboration and competitiveness in improving the sustainability of MSME businesses through business policies. This study also seeks to develop a collaboration model that can be adopted by MSMEs on a local and national scale, based on best practices from various international studies. It is hoped that the results of this study can contribute theoretically to the development of the concept of MSME collaboration, as well as serve as a practical reference for business actors, policy makers, and supporting institutions in designing strategies to strengthen MSMEs in a systemic and sustainable manner. Furthermore, these findings are expected to encourage the transformation of MSMEs from informal and fragmented economic entities into adaptive, innovative, and highly competitive business actors in the global digital business ecosystem.

B. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

1. Grand Theory

This study is based on the understanding that the success of MSMEs in improving competitiveness and business sustainability cannot be separated from resource management and adaptive capabilities. The Resource-Based View (RBV) theory serves as the main foundation, emphasizing that a business's competitive advantage is determined by its ability to access and manage valuable, scarce, difficult-to-imitate, and irreplaceable resources (Andersén, 2021). Through cross-sector collaboration, MSMEs are able to strengthen their internal structures, improve operational efficiency, and create innovations in products and business processes that support long-term competitiveness. Although the main motivation for implementing these practices is often cost efficiency and cost reduction, the main obstacles faced include a lack of government support and social influence (Martínez-Peláez et al., 2023). In this context, collaboration is not only a tool but also a catalyst in shaping dynamic capabilities that enable SMEs to remain relevant and competitive amid market disruption.

Collaboration in the form of strategic partnerships, incubation programs, or community development not only creates economic value but also social legitimacy and business ecosystem support. On the other hand, business policies in the form of regulations, incentives, and MSME development programs shape norms and institutional pressures that encourage business actors to adopt collaborative, innovative, and sustainable practices (Kusumaningtyas et al., 2022). In this framework, business policies act as a connector that creates a conducive environment for strengthening the competitiveness and sustainability of MSMEs.

2. Collaboration in the Context of MSMEs

Collaboration in the context of Micro, Small, and Medium Enterprises (MSMEs) refers to a strategic cooperation process between MSME actors and various external and internal parties aimed at improving business performance, expanding market networks, accessing resources, and strengthening business competitiveness. Collaboration is important because MSMEs generally face various limitations, such as

access to capital, technology, market information, and skilled human resources (Sanusi & Connell, 2018). Through collaboration, MSMEs can overcome these internal constraints by efficiently utilizing external resources.

In strategic management literature, collaboration is viewed as a form of strategic alliance that encourages knowledge sharing, increased innovation capacity, and adaptability to market dynamics (Čirjevskis, 2021; Kohtamäki et al., 2023). Thus, collaboration in SMEs is an important strategy that not only supports business continuity but also strengthens long-term business sustainability and resilience.

3. Competitiveness of SMEs

The competitiveness of MSMEs refers to the ability of micro, small, and medium enterprises to produce products or services that have a competitive advantage over their competitors in terms of price, quality, innovation, and service, as well as the ability to maintain and expand market share in a sustainable manner. In an increasingly open and competitive economic context, competitiveness is an important indicator for the survival and growth of MSMEs. According to Perifanis & Kitsios (2023), the competitiveness of a business entity is determined by its ability to create value through efficient and innovative strategies, as well as its responsiveness to market dynamics.

Furthermore, the competitiveness of SMEs is also related to adaptation to the rapid pace of digitalization and technological transformation. SMEs that are able to adopt digital technology tend to have an advantage in reaching a wider market and improving business process efficiency (Kallmuenzer et al., 2024). Therefore, understanding the competitiveness of SMEs cannot be separated from development strategies that involve multi-party collaboration and supportive policies.

4. Business Sustainability

Business sustainability in the context of Micro, Small, and Medium Enterprises (MSMEs) refers to the ability of a business to survive and grow in the long term by considering the balance between economic, social, and environmental aspects. This concept focuses not only on achieving financial profits, but also on efforts to maintain harmonious relationships with stakeholders, create positive social impacts, and preserve the environment in business operations (Alay et al., 2024).

MSMEs are required not only to pursue efficiency and growth, but also to adopt sustainable strategies through green product innovation, energy efficiency, waste management, and fair and inclusive work practices (Tereshchenko et al., 2023). Therefore, understanding and implementing sustainability in SME business models is crucial in creating businesses that not only survive but also thrive in a complex and dynamic business ecosystem.

5. Business Policy

Business policy in the context of Micro, Small, and Medium Enterprises (MSMEs) refers to a set of strategic decisions, guidelines, and regulations designed by

both the government and business actors themselves to direct, regulate, and support operational processes, development, and business continuity. Business policy covers various aspects, such as licensing, taxation, access to financing, legal protection, innovation, digitization, and strengthening entrepreneurial capacity (Kraus et al., 2024). Effective policies can help MSMEs overcome various limitations, such as access to capital, low digital literacy, and limitations in market expansion (Huong & Anh, 2024).

In addition, business policies also reflect the role of the state in promoting structural transformation, innovation, and business sustainability, particularly through a collaborative approach involving the private sector, academia, and the community (Asif et al., 2024). Thus, appropriate business policies are an important foundation for the development of resilient, innovative, and sustainable MSMEs.

6. MSME Collaboration for Business Sustainability

From the Resource-Based View (RBV) perspective, collaboration enables SMEs to leverage previously unavailable external assets such as technology or access to capital, thereby enhancing their enduring internal capabilities. Dynamic Capability Theory emphasizes the ability to adapt and reconfigure to rapidly changing market conditions, supported by cross-sector collaboration (Köhler et al., 2022; Trivellato et al., 2020).

Institutional Theory highlights how partnerships with formal entities such as public institutions and governments can shape institutional legitimacy and facilitate access to supportive policies. Partnerships with large enterprises have also proven to be catalysts for strengthening sustainable microeconomics (Al-Marri & Pinnington, 2022; Ordonez-Ponce et al., 2021). Additionally, collaborative networks enhance innovation and sustainability performance through knowledge exchange as a key to strengthening long-term business sustainability (Shi & Xiao, 2024). Therefore, the hypothesis is:

H1: Collaboration among SMEs positively influences business sustainability

7. The Competitiveness of SMEs in Relation to Business Sustainability

The main aspects of competitiveness include innovation capability, cost efficiency, product quality, and technology adoption (Iqbal et al., 2024; Monnagaaratwe & Mathu, 2022). Within the Resource-Based View (RBV) framework, competitiveness based on the uniqueness of SMEs' internal resources becomes the main driver of sustainability (Kosiol et al., 2023).

Business sustainability not only demands efficiency but also the ability of SMEs to compete through product value-added and smart market approaches. SMEs with competitive advantages tend to be more capable of transforming into resilient businesses. Similarly, business model innovations such as digitalization and green business are crucial elements in maintaining sustainability (Latifi et al., 2021). Therefore, the hypothesis is:

H2: The competitiveness of SMEs has a positive effect on business sustainability

8. MSME Collaboration on Business Policy

MSME collaboration, whether in the form of associations, cooperatives, partnerships with state-owned enterprises/private companies, or networks with universities and the government, plays an important role in shaping and influencing the direction of business policy. Collaborative governance has also proven to be an effective approach in formulating policies that address the real needs of MSMEs (Guimarães et al., 2021).

Strategic collaboration improves access to policy information, strengthens advocacy, and builds legitimacy for the policies implemented (Söderberg et al., 2021). In this context, collaboration is not only a tool for strengthening business capacity but also a tool for empowering public policy. Therefore, the hypothesis is:

H3: Collaboration among MSMEs has a positive effect on the effectiveness of business policies

9. MSME Competitiveness in Business Sustainability

MSMEs that demonstrate high competitiveness in terms of innovation, productivity, and market expansion tend to be the main targets of coaching and incentive programs (Siregar & Razali, 2022). The government responds to high competitiveness by accelerating access to financing, training, and tax incentives. SMEs with digital competitiveness gain faster access to assistance programs (Jangjarat & Jewjinda, 2023). Therefore, the hypothesis is:

H4: SME competitiveness has a positive effect on business policies

10. Business Policies on Business Sustainability

Policies that include green financing, fiscal incentives, training, and licensing facilities have been proven to strengthen the foundations of sustainable business (Hou & Wang, 2024). From the perspective of Stakeholder Theory, the success of a policy depends on the extent to which the needs of business actors are used as the basis for policy formulation (Hutsaliuk et al., 2020). Green financing and green cluster policies have a significant impact on business sustainability (Megawati et al., 2024) . Therefore, the hypothesis is:

H5: Business policies have a positive effect on business sustainability

From the development of the above hypothesis, the research paradigm can be described as follows:

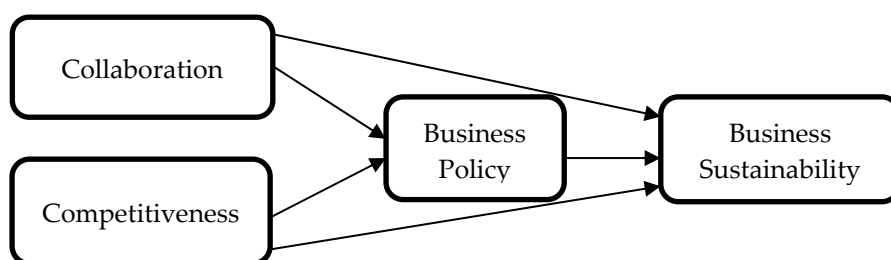


Figure 1. Research Paradigm

C. METHOD

This study uses a sequential explanatory mixed-methods approach. Quantitative data (to test the relationship between variables and test hypotheses) and qualitative data (to enrich understanding of mechanisms, context, and explain quantitative findings) are collected simultaneously.

The population in this study was the food industry in Sukabumi Regency, which numbered 3,501 (opendata.sukabumikab.go.id). The sample was taken using non-probability purposive sampling, with criteria of a minimum business capital of IDR 15,000,000, a minimum business age of 5 years, and the position of the business owner, resulting in a sample of 200 business actors. To obtain quantitative data, 175 business owners were selected as respondents, and to achieve data depth, 25 business owners became informants in this study.

In this study, there are 4 variables, including 2 independent variables (Collaboration and Competitiveness), 1 dependent variable (Business Sustainability), and 1 mediating variable (Business Policy). Quantitative data was collected through the distribution of questionnaires (Google Form) based on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Meanwhile, qualitative data was collected through in-depth interviews with 25 selected informants.

Quantitative data obtained from 175 respondents through questionnaires were analyzed using descriptive statistics to describe the characteristics of respondents and the distribution of research variables, followed by validity and reliability tests of the instruments. The analysis of the relationship between variables was performed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) method with the help of SmartPLS 3.0 software. Qualitative data collected from 25 informants through semi-structured interviews were analyzed using thematic analysis techniques. Data source triangulation techniques were used in this study, which were useful for comparing interview results, documents, and field notes, as well as providing check-ins with informants to improve the credibility of the results. The integration of quantitative and qualitative results was carried out by comparing the findings of both approaches in joint display to see the convergence or divergence, which was then analyzed contextually.

D. RESULTS AND DISCUSSION

1. Testing with the Measurement Model (*Outer Model*)

In assessing convergent validity using Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis, several standards are commonly used. Factor loadings should exceed 0.70 to indicate that the indicators have a strong correlation with the construct. Additionally, the average extracted variance (AVE) and communality values should be greater than 0.5 to ensure that the construct absorbs more than half of the variance from its indicators, indicating adequate convergent validity (Seyfi et al., 2021 ; Setiadi et al., 2025).

a. Validity Test

In research, convergent and discriminant validity are methods used to ensure that the measurement tools or scales used in the research are valid or reliable in measuring the targeted construct. In the context of using SmartPLS with reflective indicators, convergent validity is evaluated through factor loadings, which are correlations between item or component scores and construct scores. Diagram illustrating the causal relationships between constructs and containing factor loading values for each indicator:

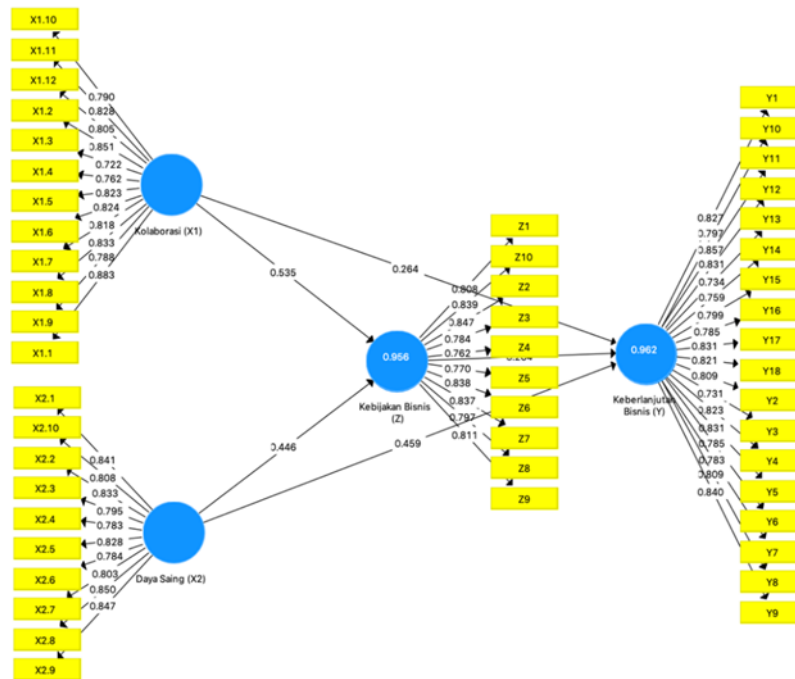


Figure 2. Outer Model

Source: Processed from SMART PLS3 (2025)

Figure 1 above shows the convergent validity based on the factor loading values for each construct indicator. The results present information regarding the Factor Loading results for each manifest variable, where the Factor Loading values of all indicators for the latent variable show > 0.70 , so that the indicators are considered valid.

Table 1. AVE Values

Variable	AVE Value
Collaboration	0.659
Competitiveness	0.668
Business Policy	0.656
Business Sustainability	0.646

Source: Data processed by the researcher (2025)

Based on Table 1, it can be seen that the four latent variables have AVE values that exceed the minimum limit set at 0.5. This indicates that the use of manifest variables has met the AVE criteria.

This can be assessed through several methods, one of which is cross loading, where the factor loading value of an indicator must be higher in its own construct than in any other construct, so that discriminant validity can be achieved. The cross loading results show that most indicators have the highest loading value in their original construct, for example, X1 in Collaboration, X2 in Competitiveness, Y in Business Sustainability, and Z in Business Policy. This confirms that discriminant validity is fulfilled and the indicators reflect the appropriate construct.

b. Reliability Testing

Reliability testing in Partial Least Square (PLS) can be done through two techniques, namely Composite Reliability (CR) and Cronbach's Alpha (CA), which are shown as follows:

Table 2. CA and CR

Variable	CA	CR	Conclusion
Collaboration	0.953	0.958	Reliable
Competitiveness	0.945	0.953	Reliable
Business Policy	0.941	0.950	Reliable
Business Sustainability	0.968	0.970	Reliable

Source: Data processed by the researcher (2025)

The test results show that the Composite Reliability (CR) value exceeds 0.7, and the Cronbach's Alpha (CA) value exceeds 0.6.

2. Structural Model Testing (Inner Model)

In structural model measurements, such as Structural Equation Modelling (SEM), path coefficients are evaluated to assess whether the relationships between latent variables are significant. The following is a visualization of the bootstrapping results obtained from this study:

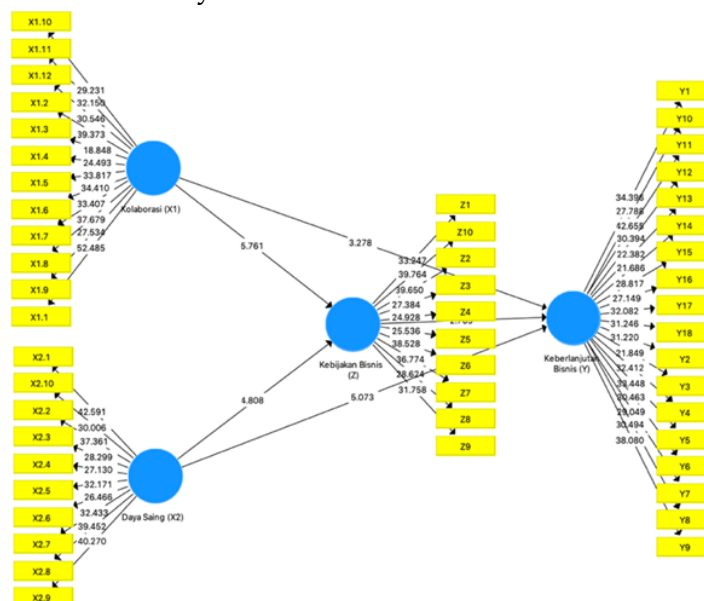


Figure 3. Bootstrapping

Source: Processed by Smart PLS 3 (2025)

The bootstrapping results show a significant relationship between latent variables. Collaboration (X1) has a positive effect on Business Policy (Z) with a path value of 5.761, while Competitiveness (X2) also contributes strongly at 4.808. Business Policy (Z) further affects Business Sustainability (Y) with a value of 2.769. In addition, Collaboration (X1) has a direct effect on Business Sustainability of 3.278, while Competitiveness (X2) contributes more with a value of 5.073.

In the context of Structural Equation Modelling (SEM), the relationship between latent constructs and model evaluation using R-Square is very important. The R-Square value, or coefficient of determination, measures the proportion of variance in the dependent latent construct that can be predicted from the independent construct. The following is a table of R-Square value estimates generated through data processing with SMARTPLS version 3 software.

Table 3. R Square Results

Variable	R Square
Business Policy	0.962
Business Sustainability	0.956

Source: Data Processed by the Researcher (2025)

The R-Square value indicates the ability of independent variables to explain dependent variables. In Table 5, Business Policy has an R-Square of 0.962, which means that 96.2% of the variation in Business Policy can be explained by Collaboration (X1) and Competitiveness (X2). Meanwhile, Business Sustainability has an R-Square of 0.956, indicating that 95.6% of the variation in Business Sustainability can be explained by Collaboration (X1), Competitiveness (X2), and Business Policy (Z).

3. Hypothesis Testing

Bootstrapping helps determine the significance and confidence intervals for path coefficients and indirect effects (mediators) in the SEM model. Path coefficients in bootstrapping, significance is often tested using t or p values obtained from resampled datasets to determine the influence of predictor variables on outcomes (Noma et al., 2021).

Table 4. Path Significance Test

Variable	Original Sample (O)	T Statistics (O/STDEV)	P Values	Description
Collaboration (X1) → Business Policy (Z)	0.535	5.761	0.000	Accepted
Competitiveness (X2) → Business Policy (Z)	0.446	4,808	0.000	Accepted
Collaboration (X1) → Business Sustainability (Y)	0.264	3.278	0.001	Accepted
Competitiveness (X2) → Business Sustainability (Y)	0.459	5.073	0.000	Accepted
Business Policy (Z) → Business Sustainability (Y)	0.264	2,769	0.006	Accepted
Collaboration (X1) → Business Policy (Z) → Business Sustainability (Y)	0.141	2.633	0.009	Accepted

Competitiveness (X2) → Business Policy (Z) → Business Sustainability (Y)	0.118	2.164	0.031	Accepted
--	-------	-------	-------	----------

Source: Data Processed by the Researcher (2025)

Statistical analysis shows that collaboration, competitiveness, and business policies play an important role in shaping the sustainability of MSMEs, both directly and indirectly.

First, collaboration has been proven to have a positive and significant effect on business policy ($\beta = 0.535$; $t = 5.761$; $p = 0.000$). This is reflected in the cooperation between MSMEs and the government, universities, communities, and other business actors, which provides tangible benefits such as ease of licensing, access to training, market expansion, and increased management capacity. This strategy is realized through product differentiation (chips, instant satay, Eid hampers), affordable pricing policies, consistent quality, and distribution through resellers. The FGD results confirm that collaboration strengthens sustainability through the use of local raw materials, job creation, and adaptive strategies during crises. These findings are in line with (Colocci et al., 2023; Gonçalves, 2022), which emphasize the role of collaboration in creating innovative and sustainable policies.

Second, competitiveness was also found to significantly influence business policies ($\beta = 0.446$; $t = 4.808$; $p = 0.000$). MSMEs emphasized flavor innovation, health benefit differentiation, and product authenticity consistency as sources of consumer loyalty. FGDs reinforce that competitiveness is manifested in new business models, adaptive pricing strategies, and openness to external ideas. The literature supports that innovation and differentiation are important determinants of adaptive business policy (Bari et al., 2022; Olaleye, 2023).

Third, collaboration has a significant positive effect on business sustainability ($\beta = 0.264$; $t = 3.278$; $p = 0.001$). Informants consider sustainability not only a global issue but also a matter of daily business continuity, such as maintaining the supply of raw materials with local suppliers and creating jobs. Cross-sector collaboration has been proven to increase resource efficiency, risk sharing, and innovation. This is consistent with (Corrales-Estrada et al., 2021).

Fourth, competitiveness also significantly influences business sustainability ($\beta = 0.459$; $t = 5.073$; $p = 0.000$). Field findings show that flavor innovation, health benefit differentiation, and quality consistency are the foundations of sustainability. The literature confirms that innovation- and differentiation-based competitiveness strengthens competitive advantage and long-term adaptation (Hanaysha et al., 2021; Ooi & Memon, 2025).

Fifth, business policies have a proven positive effect on sustainability ($\beta = 0.264$; $t = 2.769$; $p = 0.006$). Strategies for maintaining quality at affordable prices, packaging innovation, instant delivery services, and contemporary toppings are key to business stability. The literature supports that adaptive policies based on innovation, quality, and differentiation strengthen the resilience of MSMEs (Awad & Martín-Rojas, 2024).

Sixth, collaboration influences sustainability through business policies ($\beta = 0.141$; $t = 2.633$; $p = 0.009$). Collaboration generates innovation, differentiation, and efficiency policies that strengthen product quality consistency. In line with (Ahmad & Alsuhaibany, 2025), cross-actor collaboration strengthens the competitiveness and resilience of MSMEs.

Seventh, competitiveness also influences sustainability through business policies ($\beta = 0.118$; $t = 2.164$; $p = 0.031$). Field findings confirm that innovation and differentiation only have a long-term impact if they are incorporated into consistent policies. The literature supports the mediating role of business policies in ensuring adaptive SME strategies (Dwikat et al., 2022).

Based on the results of the hypothesis testing above, the following can be summarized:

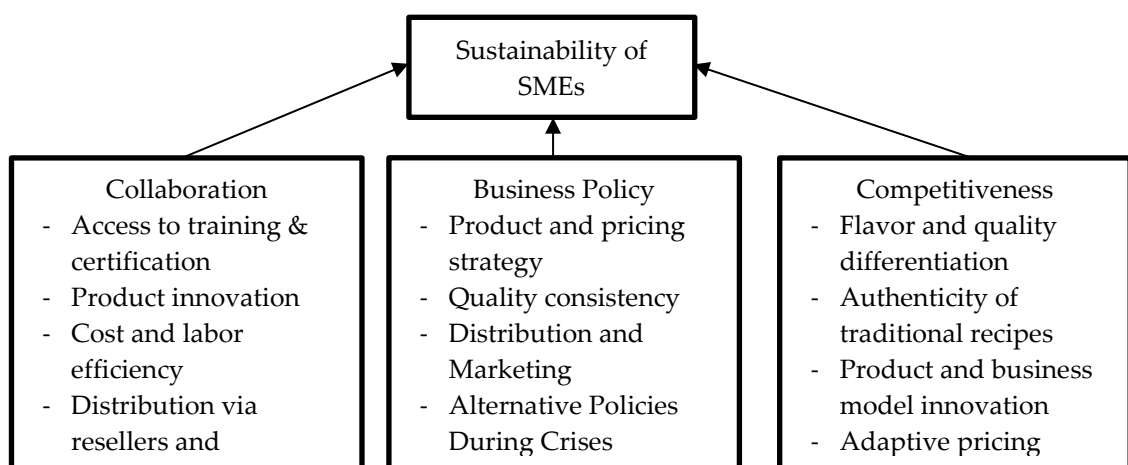


Figure 4. Summary of Informant Responses

The results of the study show that collaboration, competitiveness, and business policies have a significant impact on the sustainability of MSMEs, both directly and indirectly. Collaboration with the government, communities, universities, and fellow business actors provides access to markets, training, licensing, and encourages adaptive policies based on price, differentiation, and local raw materials. Competitiveness through innovation, differentiation, quality consistency, and added value is translated into product, pricing, distribution, and marketing policies. Business policies act as mediators that strengthen the relationship between collaboration and competitiveness with sustainability. Sustainability is practically defined as business continuity, consumer loyalty, and long-term resilience.

Collaboration has a positive and significant effect on business policy, indicating that the more intensive the collaboration practices, the more adaptive the policies formulated. In food MSMEs in Sukabumi, partnerships with suppliers, consumers, local communities, and local governments facilitate the formulation of more targeted policies. Collaboration not only expands distribution but also strengthens access to new resources and knowledge, thereby enhancing business resilience. These findings align with research by Österblom et al. (2022), Tolstykh et al. (2023) which underscores the strategic role of collaboration.

Competitiveness has a significant impact on business policy, where innovation-based advantages, quality, and operational efficiency translate into more targeted policies for long-term goals. MSMEs with unique products, distinctive flavors, competitive prices, and good service are able to formulate adaptive policies according to market needs. Strong competitiveness enables the creation of digital marketing strategies, menu innovations, and product diversification as part of business policies that support sustainability. These findings are consistent with the research of (Rumanti et al., 2022).

In addition to influencing business policies, collaboration and competitiveness also directly enhance business sustainability. Food SMEs that actively collaborate are typically more resilient because they receive support from various parties, while SMEs with superior competitiveness are more likely to gain consumer trust. Both factors help SMEs remain viable amid intensifying competition while also addressing evolving market demands. Findings support research conducted by (Bacinello et al., 2020).

Business policies play an important role in bridging the influence of collaboration and competitiveness on the sustainability of MSMEs. Findings show that collaboration and competitiveness only yield maximum results if they are translated into clear policies, such as quality standards, environmentally friendly packaging, purchasing power-based pricing strategies, and the use of digital technology. Collaboration with suppliers, for example, is more effective when incorporated into long-term policies to maintain supply, while competitive advantages are more valuable when realized through menu innovation or service improvements. Thus, SME sustainability is achieved through the synergy of collaboration, competitiveness, and consistent business policies.

E. CONCLUSION

The results of the study show that collaboration, competitiveness, and business policies have a positive and significant effect on the sustainability of MSMEs. Collaboration strengthens policies while increasing sustainability through access to licensing, training, innovation, and distribution networks. Competitiveness arises from innovation, differentiation, and consistency in quality, which are reflected in product, pricing, and distribution policies. Business policy plays an important mediating role, ensuring that collaboration and competitiveness result in sustainability. The practical implication is that a collaborative ecosystem of MSMEs, government, community, and private sector is needed to support innovation and business networks. Theoretically, this research enriches Resource-Based View (RBV), Dynamic Capability, Stakeholder, and Institutional Theory by emphasizing the mediating role of business policy. The limitation of this research lies in its focus on food SMEs in Sukabumi, so it is recommended to expand the sector, region, and add new variables such as digital literacy and technological innovation, using a longitudinal approach to assess long-term impacts.

REFERENCES

1. Adomako, S. (2020). Environmental collaboration, sustainable innovation, and small and medium-sized enterprise growth in <scp>sub-Saharan</scp> Africa: Evidence from Ghana. *Sustainable Development*, 28(6), 1609–1619. <https://doi.org/10.1002/sd.2109>
2. Ahmad, S., & Alsuhaibany, Y. (2025). Small Feet, Big Prints: The Contribution of Family-Owned Micro, Small, and Medium Enterprises (<scp>MSMEs</scp>) to Sustainable Development Goals (<scp>SDGs</scp>). *Business Ethics, the Environment & Responsibility*. <https://doi.org/10.1111/beer.12790>
3. Al-Marri, M., & Pinnington, A. H. (2022). Managing Sustainability Projects for Social Impact from a Corporate Social Responsibility Perspective. *Sustainability*, 14(11), 6418. <https://doi.org/10.3390/su14116418>
4. Alay, H. K., Şen, G., Deveciyan, M. T., Kayalıdereden, D., Berber, Ş., & Keskin, A. (2024). The Impact of Green Business Ethics and Green Financing on Sustainable Business Performance of Industries in Türkiye: The Mediating Role of Corporate Social Responsibility. *Sustainability*, 16(17), 7868. <https://doi.org/10.3390/su16177868>
5. Andersén, J. (2021). A relational natural-resource-based view on product innovation: The influence of green product innovation and green suppliers on differentiation advantage in small manufacturing firms. *Technovation*, 104, 102254. <https://doi.org/10.1016/j.technovation.2021.102254>
6. Asif, M., Yang, L., & Hashim, M. (2024). The Role of Digital Transformation, Corporate Culture, and Leadership in Enhancing Corporate Sustainable Performance in the Manufacturing Sector of China. *Sustainability*, 16(7), 2651. <https://doi.org/10.3390/su16072651>
7. Awad, J. A. R., & Martín-Rojas, R. (2024). Digital transformation influence on organisational resilience through organisational learning and innovation. *Journal of Innovation and Entrepreneurship*, 13(1). <https://doi.org/10.1186/s13731-024-00405-4>
8. Bacinello, E., Tontini, G., & Alberton, A. (2020). Influence of corporate social responsibility on sustainable practices of small and medium-sized enterprises: Implications on business performance. *Corporate Social Responsibility and Environmental Management*, 28(2), 776–785. <https://doi.org/10.1002/csr.2087>
9. Bari, N., Chimhundu, R., & Chan, K.-C. (2022). Dynamic Capabilities to Achieve Corporate Sustainability: A Roadmap to Sustained Competitive Advantage. *Sustainability*, 14(3), 1531. <https://doi.org/10.3390/su14031531>
10. Bridoux, F., & Stoelhorst, J. (2022). Stakeholder theory, strategy, and organization: Past, present, and future. *Strategic Organization*, 20(4), 797–809. <https://doi.org/10.1177/14761270221127628>
11. Čirjevskis, A. (2021). Exploring Critical Success Factors of Competence-Based Synergy in Strategic Alliances: The Renault–Nissan–Mitsubishi Strategic Alliance. *Journal of Risk and Financial Management*, 14(8), 385. <https://doi.org/10.3390/jrfm14080385>

12. Colocci, A., Gioia, E., Casareale, C., Marchetti, N., & Marincioni, F. (2023). The role of sustainable energy and climate action plans: Synergies with regional sustainable development strategies for a local 2030 agenda. *Environmental Development*, 47, 100894. <https://doi.org/10.1016/j.envdev.2023.100894>
13. Corrales-Estrada, A. M., Gómez-Santos, L. L., Bernal-Torres, C. A., & Rodríguez-López, J. E. (2021). Sustainability and Resilience Organizational Capabilities to Enhance Business Continuity Management: A Literature Review. *Sustainability*, 13(15), 8196. <https://doi.org/10.3390/su13158196>
14. Dwikat, S. Y., Arshad, D., & Mohd Shariff, M. N. (2022). The Influence of Systematic Strategic Planning and Strategic Business Innovation on the Sustainable Performance of Manufacturing SMEs: The Case of Palestine. *Sustainability*, 14(20), 13388. <https://doi.org/10.3390/su142013388>
15. Fainshtein, E., Serova, E., Vorobyev, P., & Chkoniya, V. (2023). Sustainable Social Systems: Innovative Service Implications in the Restaurant Business in the Post-COVID Era with Digital Transformation Strategies. *Sustainability*, 15(19), 14539. <https://doi.org/10.3390/su151914539>
16. García-Valenzuela, V. M., Jacobo-Hernandez, C. A., & Flores-López, J. G. (2023). Dynamic Capabilities and Their Effect on Organizational Resilience in Small and Medium-Sized Commercial Enterprises. *Management & Marketing*, 18(4), 496–514. <https://doi.org/10.2478/mmcks-2023-0027>
17. Gonçalves, H. (2022). Welfare-Partnership Dynamics and Sustainable Development. *Sustainability*, 14(13), 7819. <https://doi.org/10.3390/su14137819>
18. Guimarães, L. G. D. A., Blanchet, P., & Cimon, Y. (2021). Collaboration among Small and Medium-Sized Enterprises as Part of Internationalization: A Systematic Review. *Administrative Sciences*, 11(4), 153. <https://doi.org/10.3390/admsci11040153>
19. Gupta, G., Ee, Y. S., Tan, K. T. L., & Phang, C. S. C. (2018). Resource-Based View of Information Systems: Sustainable and Transient Competitive Advantage Perspectives. *Australasian Journal of Information Systems*, 22. <https://doi.org/10.3127/ajis.v22i0.1657>
20. Hanaysha, J. R., Al-Shaikh, M. E., Joghee, S., & Alzoubi, H. M. (2021). Impact of Innovation Capabilities on Business Sustainability in Small and Medium Enterprises. *FIIB Business Review*, 11(1), 67–78. <https://doi.org/10.1177/23197145211042232>
21. He, J., Fu, X., Lei, Y., Chang, C.-H., & Lin, C.-H. (2020). How Can Manufacturers Promote Green Innovation in Food Supply Chain? Cost Sharing Strategy for Supplier Motivation. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.574832>
22. Hou, D., & Wang, X. (2024). The impact of InsurTech on advancing sustainable specialty agricultural product insurance in China. *Frontiers in Sustainable Food Systems*, 8. <https://doi.org/10.3389/fsufs.2024.1477773>
23. Hove-Sibanda, P., Pooe, D., & Sibanda, K. (2017). The impact of corporate governance on firm competitiveness and performance of small and medium enterprises in South Africa: A case of small and medium enterprises in

- Vanderbijlpark. *Acta Commercii*, 17(1). <https://doi.org/10.4102/ac.v17i1.446>
24. Huong, D. T., & Anh, N. T. (2024). Factors affecting access to finance for small and medium-sized agricultural enterprises in Vietnam. *Asian Economic and Financial Review*, 14(6), 437–455. <https://doi.org/10.55493/5002.v14i6.5079>
 25. Iqbal, M. S., Abdul Rahim, Z., Alshammari, A. M. K., & Iftikhar, H. (2024). Innovative strategies for overcoming barriers to technology adoption in small and medium-sized enterprises. *Journal of the International Council for Small Business, ahead-of-p*(ahead-of-print), 331–344. <https://doi.org/10.1080/26437015.2024.2367440>
 26. Jangjarat, K., & Jewjinda, C. (2023). Impact of the digital economy and innovation on the businesses of small and medium enterprises. *Corporate and Business Strategy Review*, 4(3), 102–110. <https://doi.org/10.22495/cbsrv4i3art10>
 27. Kallmuenzer, A., Czakon, W., Chelaru, M., & Mikhaylov, A. (2024). Adoption and performance outcome of digitalization in small and medium-sized enterprises. *Review of Managerial Science*. <https://doi.org/10.1007/s11846-024-00744-2>
 28. Köhler, J., Beske-Jansen, P., & Sönnichsen, S. D. (2022). Towards a collaboration framework for circular economy: The role of dynamic capabilities and open innovation. *Business Strategy and the Environment*, 31(6), 2700–2713. <https://doi.org/10.1002/bse.3000>
 29. Kohtamäki, M., Huikkola, T., & Rabetino, R. (2023). Learning in strategic alliances: Reviewing the literature streams and crafting the agenda for future research. *Industrial Marketing Management*, 110, 68–84. <https://doi.org/10.1016/j.indmarman.2023.02.011>
 30. Kosiol, J., Fraser, L., Radford, K., & Fitzgerald, A. (2023). Resource-based View: A new strategic perspective for public health service managers. *Asia Pacific Journal of Health Management*. <https://doi.org/10.24083/apjhm.v18i1.2053>
 31. Kraus, K., Porchuk, P., Zavolichna, T., Ishchenko, I., & Kraus, N. (2024). Innovation and Investment Potential of the Digital Entrepreneurship Support Mechanism under the Conditions of Institutional and Structural Changes. *WSEAS TRANSACTIONS ON BUSINESS AND ECONOMICS*, 21, 2626–2639. <https://doi.org/10.37394/23207.2024.21.215>
 32. Kurnia Rahayu, S., Waluya Firdauas, D., Onegina, V., & Budiarti, I. (2023). Digitalization and informal MSME: Digital financial inclusion for MSME development in the formal economy. *Journal of Eastern European and Central Asian Research (JEECAR)*, 10(1), 9–19. <https://doi.org/10.15549/jeecar.v10i1.1056>
 33. Kusumaningtyas, R. O., Jaelani, A. K., Orsantinutsakul, A., Mishra, U. K., & Subekti, R. (2022). Reduction of Digitalization Policy in Indonesian MSMEs and Implications for Sharia Economic Development. *JURIS (Jurnal Ilmiah Syariah)*, 21(2), 157. <https://doi.org/10.31958/juris.v21i2.6855>
 34. Latifi, M.-A., Nikou, S., & Bouwman, H. (2021). Business model innovation and firm performance: Exploring causal mechanisms in SMEs. *Technovation*, 107, 102274. <https://doi.org/10.1016/j.technovation.2021.102274>
 35. M Hutsaliuk, O., S Navolokina, A., V Yaroshevska, O., V Kulko-Labyntseva, I., & M Shmatko, N. (2020). Stakeholder approach to selecting enterprise-bank

- interaction strategies. *Problems and Perspectives in Management*, 18(3), 42–55. [https://doi.org/10.21511/ppm.18\(3\).2020.04](https://doi.org/10.21511/ppm.18(3).2020.04)
36. Martínez-Peláez, R., Ostos, R., Félix, R. A., Brito, H., Félix, V. G., Ochoa-Brust, A., Mena, L. J., & Rivera, S. (2023). Role of Digital Transformation for Achieving Sustainability: Mediated Role of Stakeholders, Key Capabilities, and Technology. *Sustainability*, 15(14), 11221. <https://doi.org/10.3390/su151411221>
37. Mcknight, B., & Linnenluecke, M. K. (2016). How Firm Responses to Natural Disasters Strengthen Community Resilience. *Organization & Environment*, 29(3), 290–307. <https://doi.org/10.1177/1086026616629794>
38. Megawati, S., Machmud, A., Herdiansyah, H., Sudirman, S., & Antriandarti, E. (2024). Integrating circular economy, digital economy, and social protection policies to drive green business innovation: Insights from Indonesia's culinary SMEs. *Problems and Perspectives in Management*, 22(4), 368–381. [https://doi.org/10.21511/ppm.22\(4\).2024.28](https://doi.org/10.21511/ppm.22(4).2024.28)
39. Monnagaaratwe, K. F., & Mathu, K. (2022). Supply chain management as a competitive advantage for grocery small and medium-sized enterprises in Mahikeng, South Africa. *Journal of Transport and Supply Chain Management*, 16. <https://doi.org/10.4102/jtscm.v16i0.791>
40. Nabi, A. A., Ahmed, F., Tunio, F. H., Haluza, D., & Hafeez, M. (2025). Assessing the Impact of Green Environmental Policy Stringency on Eco-Innovation and Green Finance in Pakistan: A Quantile Autoregressive Distributed Lag (QARDL) Analysis for Sustainability. *Sustainability*, 17(3), 1021. <https://doi.org/10.3390/su17031021>
41. Ni, G., Li, H., Hickey, P. J., Zhang, Z., Cui, Q., Xu, H., & Qiao, Y. (2020). Influence Mechanism of Organizational Flexibility on Enterprise Competitiveness: The Mediating Role of Organizational Innovation. *Sustainability*, 13(1), 176. <https://doi.org/10.3390/su13010176>
42. Nichols, N., Malenfant, J., & Schwan, K. (2020). Networks and evidence-based advocacy: influencing a policy subsystem. *Evidence & Policy*, 16(4), 639–659. <https://doi.org/10.1332/174426420x15868720780747>
43. Noma, H., Teramukai, S., Iba, K., Furukawa, T. A., & Shinozaki, T. (2021). Confidence intervals of prediction accuracy measures for multivariable prediction models based on the bootstrap-based optimism correction methods. *Statistics in Medicine*, 40(26), 5691–5701. <https://doi.org/10.1002/sim.9148>
44. Olaleye, B. R. (2023). Influence of eco-product innovation and firm reputation on corporate social responsibility and competitive advantage: A mediation-moderation analysis. *Journal of Public Affairs*, 23(4). <https://doi.org/10.1002/pa.2878>
45. Ooi, S. K., & Memon, K. R. (2025). Addressing Resource Scarcity: The Role of Responsible Innovation and Resilience in SMEs' Competitive Advantage and Sustainability Performance. *Corporate Social Responsibility and Environmental Management*. <https://doi.org/10.1002/csr.70005>
46. Ordonez-Ponce, E., Clarke, A., & Macdonald, A. (2021). Business contributions to the sustainable development goals through community sustainability

- partnerships. *Sustainability Accounting, Management and Policy Journal*, 12(6), 1239–1267. <https://doi.org/10.1108/sampj-03-2020-0068>
47. Österblom, H., Rockström, J., Villarrubia-Gómez, P., Crespo, G. O., Jørgensen, P. S., Johansson, K. A., Nakayama, S., Henriksson, P., Bebbington, J., Troell, M., Rocha, J., Blasiak, R., Folke, C., Bengtsson, F., Selig, E. R., Wabnitz, C., Schultz, L., Merrie, A., Jouffray, J.-B., ... Lubchenco, J. (2022). Scientific mobilization of keystone actors for biosphere stewardship. *Scientific Reports*, 12(1). <https://doi.org/10.1038/s41598-022-07023-8>
48. Perifanis, N.-A., & Kitsios, F. (2023). Investigating the Influence of Artificial Intelligence on Business Value in the Digital Era of Strategy: A Literature Review. *Information*, 14(2), 85. <https://doi.org/10.3390/info14020085>
49. Pyo, S., Oh, D. H., Chung, S. G., & Ma, H. R. (2024). Firms for Sustainable Manufacturing: Understanding the Key Determinants of Pro-environmental Behaviour. *Science, Technology and Society*, 29(2), 262–281. <https://doi.org/10.1177/09717218241238265>
50. Rumanti, A. A., Reynaldo, R., Rizana, A. F., Septiningrum, L., & Isnaini, M. M. (2022). Innovation Capability and Open Innovation for Small and Medium Enterprises (SMEs) Performance: Response in Dealing with the COVID-19 Pandemic. *Sustainability*, 14(10), 5874. <https://doi.org/10.3390/su14105874>
51. Sanusi, A., & Connell, J. (2018). Non-market strategies and Indonesian SMEs: casualties of decentralisation? *Asia-Pacific Journal of Business Administration*, 10(2/3), 200–217. <https://doi.org/10.1108/apjba-01-2018-0001>
52. Saptono, P. B., Mahmud, G., Purwanto, D., Pratiwi, I., Khozen, I., Imantoro, L. W., & Hodžić, S. (2024). Flourishing MSMEs: The Role of Innovation, Creative Compliance, and Tax Incentives. *Journal of Risk and Financial Management*, 17(12), 532. <https://doi.org/10.3390/jrfm17120532>
53. Setiadi, S., Widyastuti, S., Zulkifli, & Darmansyah. (2025). Sustainable nature tourism transformation: The strategic role of green tourism in West Java. *Edelweiss Applied Science and Technology*, 9(3), 1544–1569. <https://doi.org/10.55214/25768484.v9i3.5599>
54. Seyfi, S., Rasoolimanesh, S. M., Vafaei-Zadeh, A., & Esfandiar, K. (2021). Can tourist engagement enhance tourist behavioural intentions? A combination of PLS-SEM and fsQCA approaches. *Tourism Recreation Research*, 49(1), 63–74. <https://doi.org/10.1080/02508281.2021.1981092>
55. Shi, J., & Xiao, Z. (2024). Research on the Impact of Inter-Industry Innovation Networks on Collaborative Innovation Performance: A Case Study of Strategic Emerging Industries. *Systems*, 12(6), 211. <https://doi.org/10.3390/systems12060211>
56. Sindhvani, R., Behl, A., Sharma, A., & Gaur, J. (2022). What makes micro, small, and medium enterprises not adopt Logistics 4.0? A systematic and structured approach using modified-total interpretive structural modelling. *International Journal of Logistics Research and Applications*, 27(6), 880–905. <https://doi.org/10.1080/13675567.2022.2081672>
57. Siregar, F. A., & Razali, K. (2022). UMKM PARTICIPATION IN HALAL

- INDUSTRY: THE LEGAL FRAMEWORK AND OPPORTUNITIES. *Jurnal Ilmiah Islam Futura*, 22(1), 127. <https://doi.org/10.22373/jiif.v22i1.10393>
58. Söderberg, C., Lundmark, C., Sandström, A., & Nilsson, J. (2021). The link between collaborative governance design and markers of legitimacy: Comparing Swedish water- and large carnivore management. *Environmental Policy and Governance*, 31(6), 563–579. <https://doi.org/10.1002/eet.1958>
59. Swatdikun, T., Pathak, S., & Surbakti, L. P. (2024). Sustainable Small and Medium Enterprises (SMEs) in the times of COVID-19. *Progress in Disaster Science*, 22, 100327. <https://doi.org/10.1016/j.pdisas.2024.100327>
60. Tereshchenko, E., Porras, J., Vaithilingam, C. A., & Happonen, A. (2023). Green Growth, Waste Management, and Environmental Impact Reduction Success Cases From Small and Medium Enterprises Context: A Systematic Mapping Study. *IEEE Access*, 11, 56900–56920. <https://doi.org/10.1109/access.2023.3271972>
61. Tolstykh, T., Gamidullaeva, L., Krasnobaeva, V., & Shmeleva, N. (2023). The Role of Collaboration in the Development of Industrial Enterprises Integration. *Sustainability*, 15(9), 7180. <https://doi.org/10.3390/su15097180>
62. Trivellato, B., Cavenago, D., & Martini, M. (2020). How Do Organizational Capabilities Sustain Continuous Innovation in a Public Setting? *The American Review of Public Administration*, 51(1), 57–71. <https://doi.org/10.1177/0275074020939263>
63. Wang, C., Ou, J., & Yan, G. (2023). Does Digitization Promote Green Innovation? Evidence from China. *International Journal of Environmental Research and Public Health*, 20(5), 3893. <https://doi.org/10.3390/ijerph20053893>
64. Wang, S., & Zhang, H. (2025). Digital Transformation and Innovation Performance in Small- and Medium-Sized Enterprises: A Systems Perspective on the Interplay of Digital Adoption, Digital Drive, and Digital Culture. *Systems*, 13(1), 43. <https://doi.org/10.3390/systems13010043>
65. Yang, Z., Likai, Z., & Ruoyu, L. (2022). The Impact of Network Ties on SMEs' Business Model Innovation and Enterprise Growth: Evidence From China. *IEEE Access*, 10, 29846–29858. <https://doi.org/10.1109/access.2022.3158749>