

Strategic Variables in Sustainable Halal Tourism Village Economic Development: A MICMAC Analysis

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ABSTRACT

The novelty of this study lies in its methodological contribution through the application of MICMAC (Matrix of Cross-Impact Multiplication Applied to Classification) structural analysis in the context of sustainable halal tourism village development in Indonesia, an approach that remains rarely explored in previous halal tourism and rural development studies. Unlike conventional approaches such as descriptive analysis or SWOT analysis, this study employs MICMAC to systematically map the direct and indirect influence-dependence relationships among strategic variables within a complex rural tourism system. This study contributes by developing an integrated structural framework that simultaneously incorporates rural economic development, halal tourism principles, institutional governance, community participation, digitalization, environmental sustainability, and local cultural preservation. Through MICMAC analysis, the study is able to identify key driving variables, relay variables, dependent variables, and autonomous variables, thereby providing a more comprehensive understanding of the causal structure underlying sustainable halal tourism village development. Methodologically, this study demonstrates that MICMAC analysis can serve as an effective strategic policy tool for identifying priority intervention areas in complex village-based tourism systems. The findings provide a more systematic and evidence-based foundation for policymakers in designing phased and sustainable halal tourism village development strategies in Indonesia.

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Introduction

Rural economic development in Indonesia over the past decade has increasingly been directed toward a model based on local potential, including through the development of tourism villages (Ministry of Villages, Development of Disadvantaged Regions, and Transmigration, 2020; World Bank, 2021). This approach is considered strategic as it enables the diversification of community income sources, expands employment opportunities, stimulates the growth of micro, small, and medium enterprises (MSMEs), and

strengthens rural economic resilience (United Nations World Tourism Organization, 2020; Statistics Indonesia, 2023). In the context of national policy, the Government of Indonesia, through the Ministry of Tourism and Creative Economy, positions tourism villages as a key instrument for inclusive, sustainable, and community-based economic development (Ministry of Tourism and Creative Economy, 2023). This is reflected in flagship programs such as the Tourism Village Network platform and the 2024 Indonesian Tourism Village Awards, which emphasize five main indicators: attractions, amenities, digitalization, institutions and human resources, and environmental resilience (Ministry of Tourism and Creative Economy, 2024).

Empirically, the development of tourism villages in Indonesia has shown a significant upward trend. The Ministry of Tourism and Creative Economy recorded more than 6,000 tourism villages in Indonesia in 2024 (Ministry of Tourism and Creative Economy, 2024), distributed across regions with diverse natural, cultural, and social characteristics. This figure highlights the substantial potential of tourism villages as a driving force of rural economic growth (United Nations World Tourism Organization, 2021). However, the quantitative growth of tourism villages has not been fully accompanied by improvements in governance quality, product differentiation, and local economic sustainability (Organisation for Economic Co-operation and Development, 2020). In many cases, tourism villages still face challenges such as weak institutional capacity, limited infrastructure, low human resource capability, and the absence of sustainable business models (Statistics Indonesia, 2023; Ministry of Villages PDTT, 2022).

In the context of Indonesia's predominantly Muslim population, the development of halal tourism villages has emerged as an increasingly relevant model (State of the Global Islamic Economy, 2023; World Economic Forum, 2022). Halal tourism villages not only offer attractions based on culture and nature but also emphasize halal principles, worship convenience, cleanliness, service ethics, and socio-economic sustainability (United Nations World Tourism Organization, 2021).

The growing global trend of halal tourism has encouraged Indonesia to strengthen its positioning as a Muslim-friendly destination (CrescentRating, 2023). One recent policy reflecting this urgency is the acceleration of halal certification for food and beverage products in 3,000 tourism villages in 2024 through the Mandatory Halal October 2024 acceleration program (Halal Product Assurance Organizing Agency, 2024; Ministry of Tourism and Creative Economy, 2024). This policy aims to enhance consumer protection, improve tourism service quality, and increase the competitiveness of MSMEs in tourism villages (BPJPH, 2024; Ministry of Tourism and Creative Economy, 2024).

Nevertheless, the implementation of sustainable halal tourism villages in Indonesia still faces multidimensional challenges (Ministry of Tourism and Creative Economy, 2024; Statistics Indonesia, 2023). First, not all tourism villages have adequate halal-related amenities, such as proper worship facilities, sanitation, certified halal restaurants, and halal-based homestays (Halal Product Assurance Organizing Agency, 2024). Second, rural

communities' literacy regarding sustainable halal tourism remains relatively low, particularly in terms of service quality, digital marketing, and business management (Ministry of Villages, Development of Disadvantaged Regions, and Transmigration, 2022). Third, institutional coordination among actors—village governments, village-owned enterprises (BUMDes), tourism awareness groups (Pokdarwis), MSME actors, and local communities—remains suboptimal (Ministry of Tourism and Creative Economy, 2023). Fourth, environmental pressures such as waste management, carrying capacity, and local cultural conservation are often not prioritized (United Nations Environment Programme, 2021). These conditions indicate that halal tourism village development constitutes a complex system influenced by multiple interrelated variables (Organisation for Economic Co-operation and Development, 2020).

The primary issue in the sustainable economic development of halal tourism villages lies in the lack of comprehensive identification of the most influential strategic variables (Systems Analysis, 2019). Most existing policies and interventions remain partial, sectoral, and not based on a systematic mapping of causal relationships among factors (World Bank, 2021). As a result, halal tourism village development programs are often less effective, unsustainable, and have not yet generated equitable economic benefits for rural communities (Asian Development Bank, 2022).

Despite the rapid expansion of tourism villages and the growing importance of halal tourism in Indonesia, the sustainability of halal tourism village economic development remains insufficiently understood from a systemic perspective. Existing studies on halal tourism villages have predominantly focused on descriptive assessments, tourism potential analysis, visitor perceptions, marketing strategies, or SWOT-based evaluations (Sutiarso, 2021; Hidayat & Ma'ruf, 2022). While these studies provide valuable contextual insights, they largely examine tourism components in isolation and fail to explain the structural interdependence among strategic variables influencing long-term sustainability. Therefore, this study addresses an important gap by applying MICMAC (Cross-Impact Matrix Multiplication Applied to Classification) structural analysis to identify and classify strategic variables influencing the sustainability of halal tourism village economic development. Unlike previous studies, MICMAC analysis enables the mapping of direct and indirect influence relationships among variables, allowing the identification of key driving variables that have the greatest strategic impact on system sustainability.

Based on this gap, this study offers novelty through the application of MICMAC (Cross-Impact Matrix Multiplication Applied to Classification) analysis to identify, map, and classify strategic variables in the sustainable economic development of halal tourism villages (Godet, 2006). This approach is advantageous in analyzing structural interrelationships among variables, enabling more precise policy intervention priorities (Godet, 2006). Another contribution of this study lies in integrating rural economic dimensions, halal tourism principles, environmental sustainability, and institutional

governance into a comprehensive analytical framework (United Nations World Tourism Organization, 2021; Ministry of Tourism and Creative Economy, 2024).

The novelty of this study lies in three main aspects. First, this study develops a systemic analytical framework that integrates halal tourism principles, sustainable rural economic development, environmental sustainability, institutional governance, and local socio-cultural dimensions simultaneously. Second, this study applies MICMAC structural analysis in the context of halal tourism villages, an approach that remains rarely explored in the halal tourism and rural development literature. Third, this study not only identifies strategic variables but also classifies them into key driver, relay, dependent, and autonomous variables, thereby producing more precise policy priorities for sustainable village economic transformation.

The sustainable economic development of halal tourism villages represents a local development model that positions villages as centers of growth based on endogenous potential, including natural resources, local culture, social capital, and religious values. From a development economics perspective, this approach aligns with place-based development theory, which emphasizes that inclusive economic growth is more effectively achieved through optimizing local advantages rather than relying solely on external interventions. In this context, halal tourism villages function not only as tourism destinations but also as socio-economic production spaces that stimulate local business activities, expand employment opportunities, and sustainably increase household income (Sharpley, 2020; Tolkach & King, 2023).

Conceptually, sustainable halal tourism villages represent an integration of community-based tourism, local economic development, and halal principles. This integration is crucial, as rural development should not rely solely on economic output growth but must also consider equitable benefit distribution, social sustainability, and environmental sustainability. Within the rural economy framework, the tourism sector has the capacity to generate significant multiplier effects through intersectoral linkages, including agriculture, livestock, culinary industries, transportation, handicrafts, and digital services. Therefore, halal tourism village development has strong potential as a strategic instrument for structural rural economic transformation (UNWTO, 2023; Miller & Torres-Delgado, 2023).

From a sustainable development perspective, halal tourism villages must maintain a balance among economic, social, and environmental dimensions. The economic dimension emphasizes improving community welfare through fair distribution of tourism benefits. The social dimension focuses on strengthening social cohesion, community participation, and the preservation of local cultural identity. Meanwhile, the environmental dimension relates to natural resource conservation, waste management, carrying capacity, and mitigation of ecological impacts. These three dimensions are essential to ensure that tourism villages develop not exploitatively, but rather in a resilient and long-term manner (Bramwell & Lane, 2022; Sharpley, 2020).

In the context of halal tourism villages, sustainability also incorporates a broader dimension of spirituality as a normative foundation for development. Islamic values such as amanah (responsibility), adl (justice), maslahah (public benefit), and ihsan (excellence in service) guide tourism governance. This distinguishes halal tourism villages from conventional tourism models, as their development orientation extends beyond economic efficiency to include ethical business practices, social harmony, and environmental balance. This approach positions halal tourism villages as a more holistic and welfare-oriented development model (Battour et al., 2023; Henderson, 2016).

Operationally, halal tourism villages are characterized by distinctive service features, including the provision of halal food, worship facilities, clean and safe environments, attractions managed in accordance with halal norms, and services that respect privacy and family comfort. These characteristics create a strong value proposition for the growing global Muslim tourism market. Trends indicate that Muslim tourists increasingly prioritize spiritual service quality, safety, and product halalness in travel decisions. Therefore, halal tourism villages hold strong potential to become leading destinations in value-based tourism markets (Global Muslim Travel Index, 2024; Battour et al., 2023).

Beyond tourism destinations, halal tourism villages also serve as instruments for strengthening local economies through the creation of broad value chains. Tourism activities can stimulate the growth of halal MSMEs, halal homestays, local guiding services, cultural performances, creative industries, and digital-based village product marketing. In local development theory, this phenomenon is known as backward and forward linkages, referring to economic connections that expand development impacts across multiple productive sectors. Therefore, the success of halal tourism villages should be measured not only by visitor numbers but also by their ability to generate equitable economic value and strengthen village self-reliance (Porter, 1998; Rogerson & Rogerson, 2021).

Empirical evidence from Harini et al. (2025) provides important insights into how halal tourism villages can function as instruments of sustainable local economic development based on local culture. The study, conducted in Benteng Tourism Village, Bogor Regency, employed a mixed-methods approach involving surveys, in-depth interviews, observations, and Wilcoxon tests on 400 respondents. The findings reveal significant differences before and after tourism village development in economic, social, cultural, and environmental aspects. Economically, halal tourism village development has been shown to increase community income, expand employment opportunities, and stimulate local MSME growth. These findings confirm that halal tourism villages can serve as effective instruments for rural economic transformation, enhancing both community welfare and local economic independence.

In addition to economic impacts, Harini et al. (2025) emphasize that the success of sustainable halal tourism village development is strongly influenced by the integration of community participation, local cultural preservation, and sound environmental governance. The study highlights improvements in social solidarity, collective action (gotong royong),

environmental awareness, and community pride in local culture and identity. It also underscores the importance of integrating halal values, local wisdom, halal certification, and multi-stakeholder collaboration as key prerequisites for sustainable destination development.

By offering a structural and integrated perspective, this study contributes theoretically to the development of sustainable rural tourism and halal tourism literature, while practically providing evidence-based policy recommendations for governments, tourism institutions, village-owned enterprises (BUMDes), and local stakeholders in designing more adaptive and sustainable halal tourism village development strategies (Miller & Torres-Delgado, 2023; Tolkach & King, 2023). Given this complexity, a systemic approach is essential to understand the causal relationships among strategic variables in halal tourism village development.

Method

This study aims to identify strategic variables in the sustainable economic development of halal tourism villages in Indonesia. Unlike single-location studies, this research employs multiple research objects consisting of selected halal and religious tourism villages recognized as destinations based on Islamic values and local culture. The selection of these research objects is based on the following criteria: (1) the presence of tourism attractions based on Islamic culture, religious values, or halal concepts; (2) the existence of local economic activities related to tourism; (3) the availability of tourism management institutions; and (4) the availability of sufficient secondary data for variable assessment.

The research objects include seven halal and religious tourism villages: Setanggor Village (Lombok, West Nusa Tenggara), Nglanggeran Tourism Village (Yogyakarta), Cibuntu Tourism Village (Kuningan, West Java), Pamah Simelir Tourism Village (North Sumatra), Dayun Tourism Village (Riau), Besur Tourism Village (East Java), and Kuin Utara Tourism Village (Banjarmasin). The data used in this study are entirely secondary data obtained from policy documents, institutional reports, halal tourism village statistics, and official government publications. The use of secondary data is justified as the primary focus of this method is to identify systemic interrelationships among variables rather than to measure individual behavior or conditions within a single village.

Data analysis in this study employs structural analysis using the MICMAC (Matrix of Cross-Impact Multiplications Applied to a Classification) instrument. This method was introduced by Michel Godet as part of the Strategic Foresight approach, which focuses on analyzing interrelationships among variables within a system and supporting long-term development planning (Godet, 2006; Fauzi, 2019). In this study, MICMAC is used to map relationships among variables influencing the sustainable economic development of halal tourism villages and to identify key factors with dominant roles within the system.

The MICMAC analysis procedure follows the stages outlined by Stratigea (2013): (1) formulation of the research problem; (2) identification of strategic variables based on literature review, secondary data, and focus group discussions (FGDs); (3) analysis of interrelationships among variables; and (4) weighting of influence and dependence levels among variables.

The variables used in this analysis are derived from a synthesis of rural economic development theory, Community-Based Tourism, Stakeholder Theory, and Halal Tourism, supported by empirical studies on halal tourism villages. The variables and their operational definitions used in this study are presented as follows:

Table 1. Operational Definitions of Variables

Code	Analytical Variable	Operational Definition
Var1	Local Human Resource Quality	The level of capacity of local communities to manage halal tourism services in a professional, creative, and sustainable manner (Tolkach & King, 2023).
Var2	Community Participation	The level of community involvement in planning, implementation, monitoring, and evaluation of tourism village development (Tolkach & King, 2023; Nurhayati et al., 2025).
Var3	Tourism Village Institutions	The capacity of local organizations (BUMDes, Pokdarwis) to manage tourism destinations effectively (Harini et al., 2025).
Var4	Stakeholder Support	The level of collaboration among actors in the development of halal tourism villages (Freeman, 1984).
Var5	Tourism Infrastructure	The availability of facilities and infrastructure supporting accessibility and comfort in halal tourism (Harini et al., 2025; UNWTO, 2023).
Var6	Promotion Digitalization	The use of information technology for tourism promotion, marketing, and services (Nurhayati et al., 2025).
Var7	Halal Tourism Product Innovation	The ability of villages to create tourism attractions and services based on local halal values (Battour et al., 2023; Harini et al., 2025).
Var8	Halal Compliance	The level of conformity of tourism activities with halal principles (Henderson, 2016; Battour et al., 2023).
Var9	Local Cultural Preservation	Efforts to preserve cultural values, traditions, language, and village identity (Harini et al., 2025).
Var10	Environmental Sustainability	The ability to maintain environmental carrying capacity and conserve natural resources (Bramwell & Lane, 2022).
Var11	Access to Capital / Investment	The ease of obtaining financial support for tourism development (Porter, 1998).

Code	Analytical Variable	Operational Definition
Var12	Local Economic Impact	Changes in community economic welfare resulting from tourism village development (Sharpley, 2020).

Interrelationships among variables are analyzed by considering the degree of influence and dependence between variables (Benjumea, Castañeda, & Valencia-Arias, 2016; Fauzi, A., 2019). Through this analytical process, variables are subsequently classified into four main quadrants (Ahmad, Tang, Qiu, & Ahmad, 2019), namely:

- 1) **Quadrant I:** Key (crucial) variables, which have a strong capacity to drive changes within the system but are minimally influenced by other variables. These factors act as driving forces and serve as the foundation for strategic transformation.
- 2) **Quadrant II:** Relay variables, which are dynamic and highly sensitive to change. These variables exert strong influence but are also highly dependent on other variables within the system. Minor changes in these variables can generate significant consequences, often creating chain effects.
- 3) **Quadrant III:** Output variables, which represent the outcomes rather than the causes of change. These variables have limited influence on the system but are highly dependent on the conditions of variables in Quadrants I and II.
- 4) **Quadrant IV:** Autonomous variables, which are relatively disconnected from the overall system. Changes in these variables have minimal impact on others and are also minimally affected by system dynamics.

The calculation of relationships among elements in MICMAC is generally conducted using a cross-impact matrix, as described by Fauzi (2019), and illustrated in Table 2 below.

Table 2. Inter-Variable Relationship Matrix in MICMAC Analysis

	Var 1	Var 2	Var 3...	Var n	Influence (Y-Axis)
Var 1	0	(V1,2)	(V1,3)...	(V1,n)	$\sum_{j=1}^n (Var_1, j)$
Var 2	(V2,1)	0			
Var 3					
Var n	(Vn,1)			0	
Dependence (X-Axis)	$\sum_{j=1}^n (Var_1, 1)$...	

Table 2 presents the inter-variable relationship matrix used in the MICMAC (Cross-Impact Matrix Multiplication Applied to Classification) analysis. In this matrix, each cell represents the degree of direct influence exerted by one variable on another within the system of sustainable halal tourism village economic development. The relationships among variables are assessed using an ordinal scoring scale ranging from 0 to 3, where 0 indicates no influence, 1 indicates weak influence, 2 indicates moderate influence, and 3 indicates strong influence. This scoring system is intended to capture the relative intensity of structural

relationships among variables within the system. To enhance the validity and objectivity of the assessment process, the inter-variable relationship matrix was not constructed solely based on subjective judgment. Instead, the scoring process was carried out through a systematic triangulation of multiple data sources, including official government policy documents, tourism village development reports, statistical publications, halal tourism regulations, previous empirical studies, and institutional reports related to tourism village governance and rural economic development. These secondary data sources were analyzed using qualitative content analysis to identify patterns of causal relationships among variables.

Furthermore, the assessment of each relationship score in the matrix was conducted using predefined analytical criteria to minimize evaluator bias. Each variable relationship was evaluated based on three main considerations: (1) empirical evidence found in literature and policy documents, (2) consistency of relationships across multiple data sources, and (3) the relevance of influence within the context of sustainable halal tourism village development. Through this approach, the assigned scores reflect not merely assumptions, but a synthesis of documented empirical findings and contextual evidence. To improve methodological rigor, the matrix development process also involved iterative verification and consistency checking among variables. Variables showing ambiguous or inconsistent relationships across data sources were re-evaluated through comparative analysis to ensure logical consistency within the structural system. This procedure is important because MICMAC analysis is highly dependent on the quality and consistency of the initial Matrix of Direct Influence (MDI).

After the scoring process was completed, the data were compiled and processed using Microsoft Excel to construct the initial Matrix of Direct Influence (MDI). The matrix was subsequently analyzed using MICMAC software to calculate influence-dependence levels and classify variables into four categories: driving variables, relay variables, dependent variables, and autonomous variables. The software analysis enables the identification of both direct and indirect structural effects among variables, thereby strengthening the analytical robustness of the study.

This systematic procedure was adopted to ensure that the MICMAC matrix construction remained transparent, traceable, and analytically reliable, thereby reducing potential subjectivity in determining inter-variable influence relationships.

Results and Discussion

The results of the MICMAC analysis of the variables examined in this study provide a structural overview of the driving power and level of dependence among variables in the sustainability of halal tourism village economic development. At the initial stage, based on the data processing results, all variables analyzed in this study reached full stability at 100% after three iterations. The iteration process was conducted to ensure the consistency of

variable positions based on their levels of influence and dependence within the developed model.

Table 3. MICMAC Stability Test Results

Iteration	Influence	Dependence
1	91 %	91 %
2	92 %	100 %
3	100 %	100 %

Based on Table 3, in the first iteration the stability level reached 91% for the influence aspect and 91% for the dependence aspect. In the second iteration, the stability level increased to 92% for influence and reached 100% for dependence. This improvement indicates that the interrelationships among variables became more consistent as the analysis was iteratively refined.

Furthermore, in the third iteration, the stability level reached 100% for both influence and dependence. These results indicate that the structure of inter-variable relationships in this study has achieved a stable and robust condition.

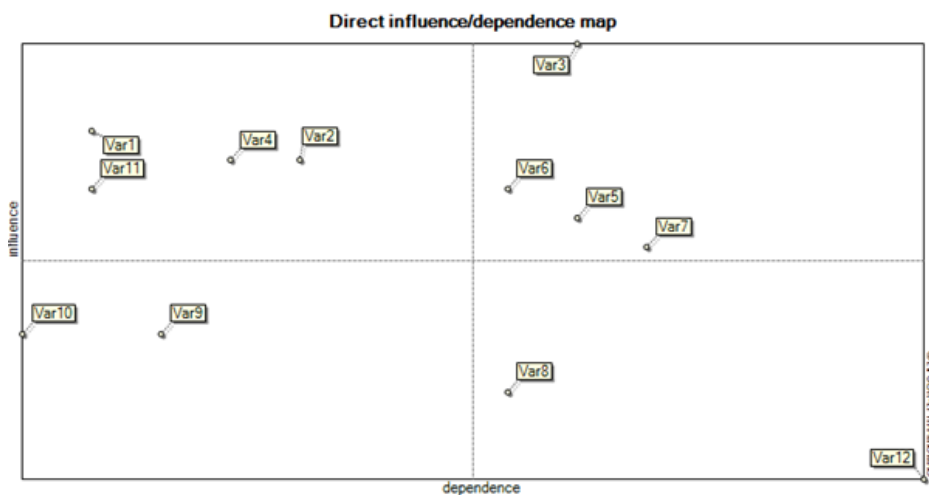


Figure 1. Results of Variable Mapping Analysis Based on Direct Influences

Table 4. Mapping of Variables by Quadrant

Quadrant	Variables
Quadrant I Key/Crucial Variables (Upper Left)	Local Human Resource Quality (Var1), Community Participation (Var2), Stakeholder Support (Var4), Access to Capital/Investment (Var11)
Quadrant II Relay/Dynamic Variables (Upper Right)	Tourism Village Institutional Capacity (Var3), Tourism Infrastructure (Var5), Promotional Digitalization (Var6), Halal Tourism Product Innovation (Var7)
Quadrant III Output Variables (Lower Right)	Halal Compliance (Var8), Local Economic Impact (Var12)

Quadrant	Variables
Quadrant IV Autonomous Variables (Lower Left)	Local Cultural Preservation (Var9), Environmental Sustainability (Var10)

Based on Figure 1 and Table 4, the results of the MICMAC analysis indicate that the development of halal tourism villages is strongly determined by the structure of interrelationships among factors that mutually influence one another. The mapping of variables into four quadrants demonstrates that the success of halal tourism villages is not determined by a single technical aspect, but rather by a combination of social capacity, institutional strength, economic factors, and sustainability. In the context of rural economic development, these findings confirm that halal tourism villages represent a complex local development system, in which human factors, governance, and resource support serve as the main foundation for rural economic transformation.

The Local Human Resource Quality variable (Var1) is positioned in Quadrant I as a key variable, indicating that the quality of local human resources has a significant influence on the entire system of halal tourism village development. Operationally, human resource quality reflects the community's ability to provide professional tourism services, understand halal principles, innovate, and maintain business sustainability. In rural economic development, competent human resources constitute the primary capital for creating productivity, improving service quality, and building tourist trust. Without adequate human resources, the potential of halal tourism villages will be difficult to develop optimally.

These findings highlight that improving the capacity of rural communities must become a policy priority. Training in halal hospitality, halal homestay management, digital literacy, tourism business management, and local entrepreneurship development are strategic steps. From a development economics perspective, investment in local human resources generates a multiplier effect, as improving community competence not only increases household income but also strengthens village institutions, expands employment opportunities, and reduces youth labor urbanization.

The Community Participation variable (Var2) is also categorized as a crucial variable, indicating that active community involvement is central to the success of halal tourism villages. Community participation includes involvement in planning, implementation, supervision, and evaluation of tourism programs. In the village context, participation is an important indicator of the success of community-based development. The higher the level of participation, the stronger the sense of ownership, so that tourism village programs are not perceived as external projects but as a collective community agenda.

Empirically, high community participation increases social legitimacy toward tourism village policies, reduces resistance, and strengthens program sustainability. Within the rural economic framework, community participation also promotes a more equitable distribution of economic benefits, as the community becomes not only the object of tourism but also an active economic actor in the tourism value chain. Therefore, strengthening village

deliberation forums, community groups, and the involvement of women and youth groups becomes an important strategy.

The Stakeholder Support variable (Var4) occupies a strategic position as a key variable because the development of halal tourism villages requires cross-sectoral synergy. Stakeholder support includes village governments, local governments, Islamic financial institutions, business actors, academics, religious leaders, and community groups. The position of this variable indicates that the success of tourism villages is highly influenced by the effectiveness of collaboration and coordination among stakeholders. From a regional development perspective, stakeholder collaboration is essential to overcome internal capacity limitations of villages. Governments can provide regulations and infrastructure, financial institutions support access to capital, academics offer assistance, and religious leaders ensure compliance with halal principles. Thus, the ideal model for developing halal tourism villages is a collaborative pentahelix-based model, as a single-sector approach tends to be less effective in addressing the complexity of rural development.

The Access to Capital/Investment variable (Var11), as a key variable, indicates that financial factors have strong leverage over the entire system. The development of halal tourism villages requires initial investment for facility development, amenity improvement, human resource training, product development, and promotion. Limited access to capital is often a major obstacle for villages in developing tourism potential professionally. Economically, adequate access to capital increases the production capacity of tourism services and accelerates the growth of local micro-enterprises. Halal financing schemes such as microfinance, halal-based village-owned enterprises (BUMDes), CSR partnerships, and social investment can serve as important instruments. These findings emphasize that without inclusive financing interventions, halal tourism villages risk stagnation due to limited working capital and long-term investment.

In Quadrant II, the Tourism Village Institutional variable (Var3) is categorized as a relay or dynamic variable. This indicates that village institutions are highly influenced by key variables while simultaneously affecting output variables. Strong institutions serve as the main instrument for translating community participation, stakeholder support, and capital into concrete programs. Weak institutions, on the other hand, lead to inefficiency, internal conflict, and low program sustainability.

The Tourism Infrastructure (Var5), Promotion Digitalization (Var6), and Halal Tourism Product Innovation (Var7) variables are also located in Quadrant II, meaning they are dynamic and sensitive to system changes. Adequate infrastructure enhances accessibility and tourist comfort. Promotion digitalization expands market reach and increases village competitiveness. Meanwhile, halal tourism product innovation serves as a differentiation factor that determines destination attractiveness. These three variables act as an important bridge between development inputs and expected economic outcomes.

The position of relay/dynamic variables suggests that halal tourism village development interventions should be designed in stages. After strengthening key variables,

village governments need to accelerate the establishment of professional institutions, improve basic infrastructure, develop digital marketing platforms, and create tourism packages based on local culture. In the context of rural economics, this phased approach is more realistic as it considers fiscal and local resource constraints.

In Quadrant III, the Halal Compliance (Var8) and Local Economic Impact (Var12) variables are categorized as output variables. This means that both variables represent the final outcomes of interactions among other variables within the system. Halal compliance does not emerge automatically but is a consequence of human resource quality, institutional strength, community oversight, and stakeholder support. Similarly, local economic impact is the accumulation of the entire tourism village development process. These findings confirm that increasing community income, job creation, local MSME growth, and strengthening rural household economies cannot be achieved instantly. Sustainable economic impacts will only emerge if tourism villages are developed in a systemic and integrated manner. In the context of inclusive development, the success of halal tourism villages should be measured not only by the number of tourists but also by the extent to which economic benefits are widely distributed among the community.

In Quadrant IV, the Local Cultural Preservation (Var9) and Environmental Sustainability (Var10) variables are categorized as autonomous variables. This position indicates that these variables are relatively less directly influenced by the core system dynamics but remain important as supporting factors for long-term sustainability. In halal tourism villages, local culture and the environment represent the core identity of the destination and serve as key attractions. Although classified as autonomous variables, cultural preservation and environmental sustainability must not be neglected. In the long term, environmental degradation and the loss of cultural identity can significantly reduce the competitiveness of tourism villages. Therefore, halal tourism village development strategies must integrate cultural and environmental conservation principles through waste management, tourism carrying capacity limitations, preservation of local traditions, and tourist education.

Thus, the ideal model for halal tourism village development is one that positions human resources, community participation, stakeholder support, and capital as the foundation; institutions, infrastructure, digitalization, and innovation as the driving forces; and halal compliance and community welfare as the ultimate goals of sustainable development.

The complex relationships among variables in the MICMAC analysis are illustrated in a visual model showing causal relationships through direct influence and indirect influence among variables, as presented in Figure 2. In Figures 2a and 2b, outward arrows indicate that a variable “influences” other variables, while inward arrows indicate that a variable is “influenced” by others. Red lines represent strong relationships among variables, whereas blue lines becoming lighter indicate progressively weaker relationships, both in terms of direct and indirect influence.

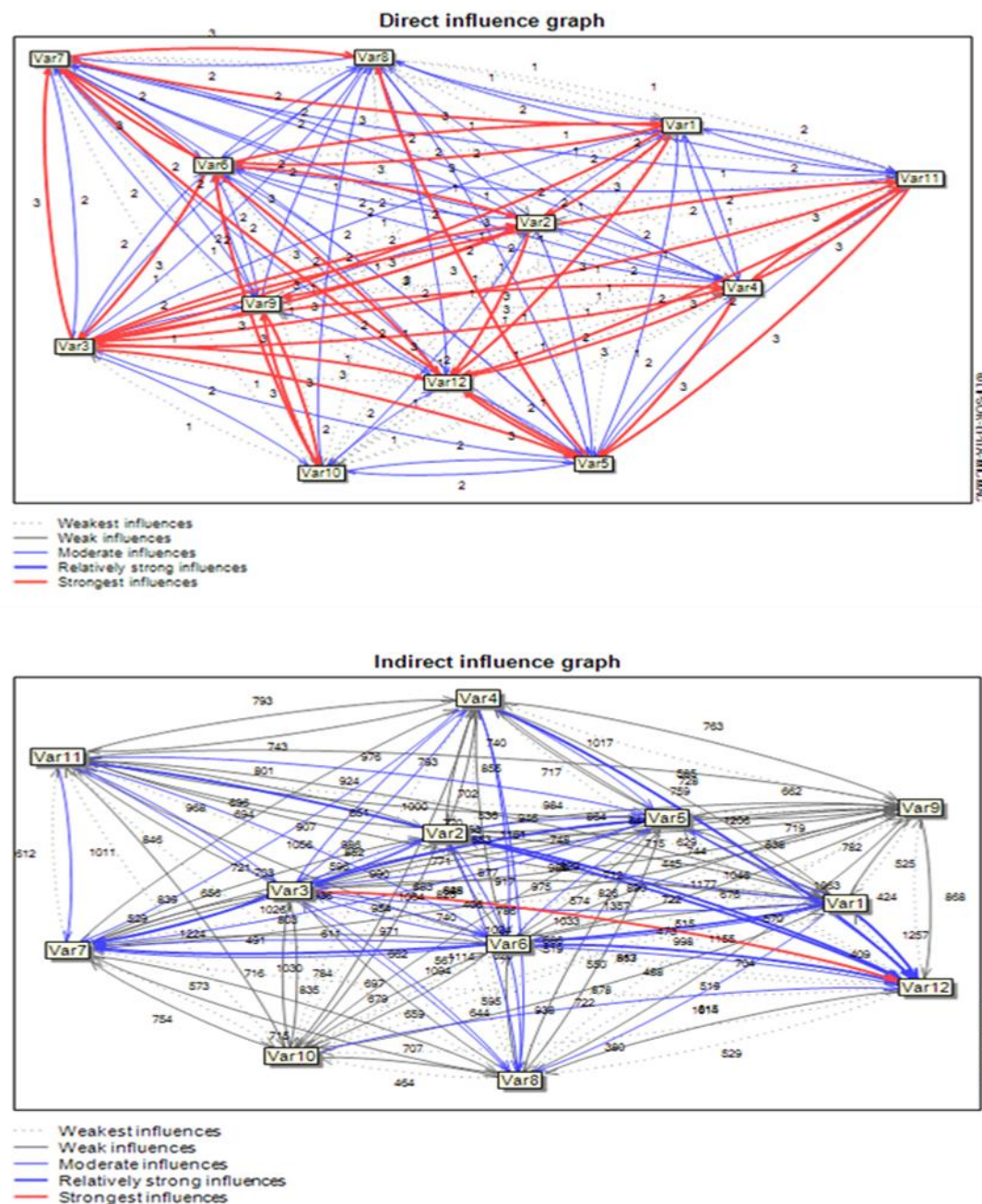


Figure 2. Complex Interrelationships Among Variables: (a) Direct Influence, (b) Indirect Influence

Based on the results of the MICMAC analysis in Figure 2a, the Tourism Village Institutional variable (Var3) occupies a highly strategic position, as it has the most dominant number of direct relationships, both as an influencing variable and as a variable being influenced. The large number of red lines directed both inward and outward indicates that Tourism Village Institutions function as a central interaction node in the Sustainable Halal Tourism Village Economic Development system.

Meanwhile, based on the indirect influence analysis in Figure 2b, the Tourism Village Institutional variable (Var3) demonstrates a significant level of indirect influence on other variables in shaping communication strategies. The presence of dominant red lines extending toward the Local Economic Impact variable (Var12) indicates that tourism village institutions act as a driving variable that indirectly influences the economic impact of halal-based tourism villages on the local economy.

The MICMAC analysis also identifies priority variables within the complexity of interrelationships among variables. As illustrated in Figures 2a and 2b, the analysis provides a classification of variable importance based on the magnitude of their driving power in Sustainable Halal Tourism Village Economic Development. In addition to illustrating the current priority of variables based on direct influence, this analysis also presents predictions of future changes in variable priorities determined by the strength of indirect influences among variables. This can be seen in Figure 3 below:

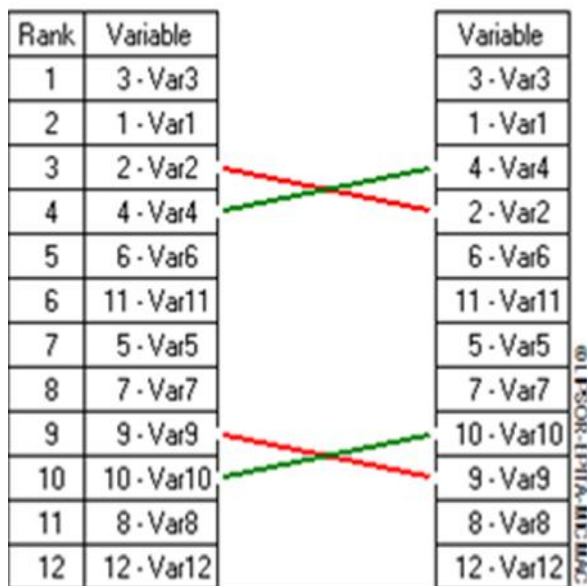


Figure 3. Classification of Variable Influence Priorities

In Figure 3, the left side illustrates the ranking of variable priorities based on current direct influence, while the right side depicts the projected changes in these priority rankings in the future. The green lines indicate variables that are predicted to increase in priority, whereas the red lines indicate variables that are expected to decline in priority within the dynamics of Sustainable Halal Tourism Village Economic Development.

Based on the analysis presented in Figure 3, the current priority variables in the development of sustainable halal tourism village economies, in order, are Tourism Village Institutions (Var3), Local Human Resource Quality (Var1), and Community Participation (Var2). These findings indicate that the success of halal tourism village development in its initial stage is largely determined by the strength of institutional governance, community capacity, and active citizen involvement. Strong institutions facilitate program coordination,

high-quality human resources enhance the professionalism of halal tourism services, and community participation strengthens the sense of ownership as well as the sustainability of village development programs.

Meanwhile, the variables predicted to experience an increase in priority in the future are Stakeholder Support (Var4) and Environmental Sustainability (Var10). This indicates that in the advanced stages of development, halal tourism villages will increasingly require collaborative support from various actors, such as government, the private sector, academics, and financial institutions, as well as greater attention to environmental sustainability. These findings suggest a shift in focus from strengthening internal village capacity toward reinforcing external networks and more sustainable development management.

Conversely, the variables predicted to decline in priority in the future are Community Participation (Var2) and Local Cultural Preservation (Var9). This decline does not imply that these variables become less important, but rather indicates that their roles have been internalized within the tourism village management system. In other words, once strong community participation has been established in the initial stage and local culture has become an embedded identity, future policy focus will be directed more toward strengthening dynamic factors that support competitiveness and the long-term economic sustainability of halal tourism villages.

Conclusion

This study demonstrates that the sustainable economic development of halal tourism villages is a complex and interconnected system involving multiple strategic variables. Based on the MICMAC analysis, the key driving variables are Local Human Resource Quality (Var1), Community Participation (Var2), Stakeholder Support (Var4), and Access to Capital/Investment (Var11), as these variables exert the strongest influence on the overall system sustainability. The findings further indicate that Tourism Village Institutions (Var3) function as the central node within the system, mediating the transformation of human resources, participation, stakeholder support, and investment into practical outcomes such as infrastructure development, digital promotion, halal tourism product innovation, halal compliance, and local economic improvement. The analysis also reveals a future shift in development priorities. While institutional strengthening, human resources, and community participation remain fundamental, stakeholder collaboration and environmental sustainability are expected to become increasingly important for ensuring long-term competitiveness and resilience of halal tourism villages. Based on these findings, policy strategies should prioritize strengthening local human resource capacity, enhancing participatory governance, revitalizing tourism village institutions, improving tourism infrastructure, and expanding digital-based halal tourism promotion. In the long term, sustainable development should be supported through multi-stakeholder collaboration, environmental conservation, waste management, tourism carrying capacity control, and local cultural preservation.

This study has several limitations. First, the MICMAC analysis relies primarily on secondary data and researcher interpretation in determining inter-variable relationships, which may still contain a degree of subjectivity despite the use of systematic triangulation and validation procedures. Second, the study focuses on structural relationships among variables without quantitatively measuring the magnitude of economic impacts generated by halal tourism village development. Third, the findings are context-specific to the Indonesian halal tourism village environment, which may limit their generalizability to other regional or international contexts with different socio-cultural and institutional characteristics.

Future studies are encouraged to strengthen the empirical robustness of halal tourism village research through mixed-method or quantitative approaches involving primary data from stakeholders, local communities, tourists, and policymakers. Further research may also integrate MICMAC with other strategic analysis methods such as Interpretive Structural Modeling (ISM), DEMATEL, Analytic Network Process (ANP), or system dynamics modeling to obtain deeper insights into causal relationships and policy scenarios.

In addition, future studies should explore the measurement of economic multiplier effects, digital tourism transformation, halal ecosystem readiness, Islamic social finance integration, and environmental carrying capacity in halal tourism villages. Comparative studies across regions or countries are also important to develop a more comprehensive and globally relevant model of sustainable halal tourism village development.

References

- Ahmad, M., Tang, X. W., Qiu, J. N., & Ahmad, F. (2019). Interpretative structural modeling and MICMAC analysis for identifying and benchmarking significant factors of seismic soil liquefaction. *Applied Sciences*, 9(1), 1–21. <https://doi.org/10.3390/app901001>
- Battour, M., Ismail, M. N., & Battor, M. (2023). Islamic tourism: An empirical examination of travel motivation and satisfaction in halal destinations. *Tourism Management Perspectives*, 48, 101149. <https://doi.org/10.1016/j.tmp.2023.101149>
- Benjumea, A., Castaneda, L., & Valencia-Arias, A. (2016). Structural analysis of strategic variables through MICMAC use: Case study. *Mediterranean Journal of Social Sciences*, 7(4), 11–19. <https://doi.org/10.5901/mjss.2016.v7n4p11>
- BPJPH Kementerian Agama Republik Indonesia. (2024). Melalui WHO 2024, BPJPH gesa sertifikasi halal produk di 3.000 desa wisata. <https://sumbar.kemenag.go.id/berita/post/melalui-who-2024-bpjph-gesa-sertifikasi-halal-produk-di-3000-desa-wisata>
- Bramwell, B., & Lane, B. (2022). Sustainable tourism governance and policy: Concepts and challenges. *Journal of Sustainable Tourism*, 30(1), 1–17. <https://doi.org/10.1080/09669582.2021.1902943>
- Fauzi, A. (2019). Teknik analisis keberlanjutan. Jakarta: PT Gramedia.
- Global Muslim Travel Index. (2024). Global Muslim travel market trends report 2024. Mastercard-CrescentRating.

- Godet, M. (2006). *Creating futures: Scenario planning as a strategic management tool*. *Economica*.
- Harini, S., Rahmawati, R., Silaningsih, E., Nurhayati, I., Mutmainah, I., Rainanto, B. H., & Endri, E. (2025). Development of halal tourism villages based on local culture and sustainability. *Tourism and Hospitality*, 6(2), 55. <https://doi.org/10.3390/tourhosp6020055>
- Jejaring Desa Wisata. (2024). Data desa wisata Indonesia. <https://jadesta.com/>
- Kementerian Pariwisata dan Ekonomi Kreatif Republik Indonesia. (2024). *Anugerah Desa Wisata Indonesia 2024: Desa Wisata menuju pariwisata hijau berkelas dunia*. <https://jadesta.kemenparekraf.go.id/adwi2024>
- Kompas.com. (2024, April 25). Sertifikasi halal di 3.000 desa wisata dipercepat hingga Oktober 2024. <https://travel.kompas.com/read/2024/04/25/091742727/sertifikasi-halal-di-3000-desa-wisata-dipercepat-hingga-oktober-2024>
- Miller, G., & Torres-Delgado, A. (2023). Measuring sustainable tourism: A state-of-the-art review. *Annals of Tourism Research*, 98, 103522. <https://doi.org/10.1016/j.annals.2022.103522>
- Neraca. (2024, April 26). Kemenparekraf sertifikasi halal produk mamin di 3.000 desa wisata. <https://www.neraca.co.id/article/197918/kemenparekraf-sertifikasi-halal-produk-mamin-di-3000-desa-wisata>
- Porter, M. E. (1998). *Clusters and the new economics of competition*. Harvard Business Review Press.
- Rogerson, C. M., & Rogerson, J. M. (2021). Tourism, local economic development and inclusion in rural destinations. *GeoJournal of Tourism and Geosites*, 34(1), 12–20.
- Sharpley, R. (2020). Tourism, sustainable development and the theoretical divide: 20 years on. *Journal of Sustainable Tourism*, 28(11), 1932–1946. <https://doi.org/10.1080/09669582.2020.1779732>
- Stratigea, A. (2013). Participatory policy making in foresight studies at regional level: A methodological approach. *Regional Science Inquiry Journal*, 5(1), 145–161.
- Tolkach, D., & King, B. (2023). Strengthening community-based tourism in developing countries: A critical review. *Tourism Recreation Research*, 48(1), 1–15. <https://doi.org/10.1080/02508281.2022.2035117>
- United Nations World Tourism Organization. (2023). *Tourism for rural development: A policy guide*. UNWTO.