Halal Ecosystem Development Strategy: Stakeholder Approach

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ABSTRACT

This study aimed to explore the dynamics of halal ecosystem development in Indonesia through a stakeholder-based Pentahelix approach. The research focuses on interactions among key actors: government, business sector, academia, community, and media in establishing an inclusive, collaborative, and sustainable halal ecosystem at the regional level. The main problems addressed include low integration among stakeholders, limited halal literacy, and structural dependence on the government. This research employs a qualitative case study method conducted in three districts/cities in Central Java Province. Data collection techniques include semi-structured interviews, participatory observation, and documentation, involving 27 informants from five stakeholder categories. The data analysis revealed five major themes: weak coordination among stakeholders, halal literacy gap, dependency on government, limited digital adoption, and differing stakeholder priorities. These findings affirm the relevance of stakeholder theory, resource dependence, and collaborative governance in the context of Indonesia's halal ecosystem. The resulting conceptual model highlights the importance of integrating bottom-up and top-down approaches to build adaptive, participatory halal governance. The study concludes that the success of regional halal ecosystem development requires cross-sector coordination forums, digital-based halal education, and policies responsive to local contexts. Future research should consider quantitative validation of the proposed model and explore non-food halal sectors further.

Keywords: *Halal Ecosystem; Pentahelix; Stakeholders; MSMEs; Collaboration; Digitalization; Governance*

INTRODUCTION

Over the past two decades, the halal industry has grown into one of the most dynamic sectors of the global economy. A report by Karudin et al. (2025) reveals that halal logistics service providers (HLSPs) play a pivotal role in enhancing the competitiveness and sustainability of halal organizations globally, as the halal market is projected to reach USD 2.8 trillion by 2025 (Karudin et al., 2025). Indonesia, as the country with the largest Muslim population in the world, has significant potential to become a hub for the global halal ecosystem. However, this potential has not yet been matched by an integrated and highly competitive halal ecosystem.

At the national level, various policies and programs have been launched, ranging from the Indonesian Sharia Economic Master Plan to incentives for halal certification. However, as Almunawar et al. (2025) demonstrate, fragmentation

remains in the management of the halal ecosystem in Indonesia, particularly in the halal food industry. These findings are reinforced by a study by Muhammad and Junejo (2025), which showed that the green technology framework has not been fully adopted to support the sustainability of the halal industry in Indonesia, resulting in a gap between policy and implementation on the ground (Muhammad & Junejo, 2025).

Observations conducted in various halal regions indicate that stakeholder engagement is still not optimal. Research by Ahmad et al. (2024) highlights how the gamification approach in the halal context is still not widely implemented, even though this method can increase stakeholder participation and awareness in developing the halal ecosystem. Furthermore, Salisu et al. (2025) emphasizes the need to integrate green and blue economy frameworks to strengthen a sustainable halal ecosystem, a concept that has not been widely explored in the Indonesian context.

Issues on the ground also include limited access to technology and digital literacy among micro and small businesses. This aligns with the research findings of Haleem et al. (2024), who developed a fuzzy-digraph-based risk mitigation model for the halal supply chain, indicating that risk management actors in the halal ecosystem has not been systematically optimized in Indonesia. This condition reflects the urgent need to develop a halal ecosystem development strategy with a stakeholder approach based on local realities.

From a social and cultural perspective, developing a halal ecosystem has important implications for strengthening Islamic cultural identity and improving community welfare. Fathoni et al. (2025) emphasize that local community involvement in the halal certification process significantly contributes to increasing the capacity and competitiveness of halal MSMEs. However, previous literature tends to focus more on macroeconomic aspects or marketing strategies, without delving deeply into the experiences and social interactions among stakeholders.

The literature gap is also evident in the lack of studies integrating various stakeholder management theories with the realities of halal ecosystem development in Indonesia. Research by Alfianto (2025) shows that the pentahelix approach involving government, academics, the private sector, communities, and the media has rarely been studied in depth in the context of the halal ecosystem. Yet, the integration of these various actors is crucial for creating sustainable synergy.

Empirical observations in three major halal tourism destinations in Indonesia reveal a misalignment of priorities among stakeholders. Local governments tend to focus on infrastructure, while local communities prioritize halal education and access to certification. A study by Marwah and Rofiqo (2024) emphasized the importance of a more inclusive, collaborative approach to address these differing priorities (Marwah & Rofiqo, 2024).

Furthermore, technology and digitalization are key factors in strengthening the halal ecosystem. However, as highlighted by Haliding and Hakim (2025), technology adoption by small-scale halal businesses in Indonesia remains low, necessitating a specific strategy that integrates education, mentoring, and strengthening digital infrastructure. This highlights the need for a hybrid approach combining top-down and bottom-up interventions.

Based on this explanation, this study aims to explore strategies for developing a halal ecosystem in Indonesia using a qualitative stakeholder-based approach. The study focuses on an in-depth understanding of how key actors in the pentahelix build

collaboration, manage conflicts of interest, and create synergies within a sustainable halal ecosystem. This approach allows researchers to capture the complex and diverse social dynamics.

This research is expected to provide theoretical contributions to the development of stakeholder management models in the halal sector, as well as practical contributions to the government, industry players, academics, and communities in designing more effective and inclusive halal development strategies. Thus, the results of this study can strengthen Indonesia's position as a major hub for the global halal industry, while simultaneously encouraging economic growth based on the principles of social justice and sustainability.

LITERATURE REVIEW

Halal Ecosystem Theory and Concept

The halal ecosystem is a complex system involving various entities interacting to create shared value based on halal principles. According to Almunawar et al. (2025), the halal business ecosystem is "a framework that maps and designs interactions between various stakeholders in the halal food industry, with the aim of creating shared value for all parties". Essential elements in this system include production, distribution, certification, marketing, and supervision, all of which must comply with halal principles.

To explain the relationships between actors in this system, Stakeholder Theory serves as the primary theoretical framework. Freeman (1984) states that organizations are accountable not only to shareholders but also to all parties impacted by their business activities. In the halal ecosystem, stakeholders include the government, business actors, the community, academics, and the media, all of whom are integrated into the Pentahelix collaborative model Pentahelix (Rachmiatie et al., 2024).

The Pentahelix Model in the Halal Ecosystem

The Pentahelix concept is an extension of the Triple Helix (Etzkowitz and Leydesdorff, 2000), which incorporates community and media dimensions as additional collaborative pillars. In the context of halal industry development, which is closely tied to social norms, cultural values, and sharia regulations, this model is considered more representative. Alfianto (2025) emphasized that "the Pentahelix model is better able to describe the complexity of the halal ecosystem than other models because it encompasses unique social and cultural aspects".

Although widely used in sharia economic policies in Indonesia, a study by Muhammad and Junejo (2025) revealed that the integration between Pentahelix actors and green technology is still limited. This highlights the gap between theoretical collaborative structures and actual implementation.

Resource Dependence in the Halal Supply Chain

Resource Dependence Theory (RDT) explains that organizations depend on external resources controlled by other parties. In the halal context, halal logistics service providers (HLSPs) are crucial entities. Shaharudin et al. (2025) stated that HLSPs influence the sustainability and competitiveness of halal organizations (Karudin et al., 2025). Limited infrastructure and logistics coordination remain major obstacles in the Indonesian halal ecosystem.

Collaborative Governance and Risk Mitigation

The governance perspective underscores the importance of collaborative, transparent, and participatory governance. Robina-Ramírez et al. (2022) developed a governance model relevant to crisis situations, which can be adapted to manage halal tourism. Furthermore, Haleem et al. (2024) developed a fuzzy digraph-based risk mitigation model to map complex relationships in the halal supply chain. This model underscores the importance of identifying dependencies and potential conflicts in systems that are not yet fully digitally integrated.

Halal Ecosystem Sustainability: Green and Blue Economy

Within the framework of sustainable development, the integration of the concepts of green economy and blue economy is crucial. Salisu et al. (2025) emphasize that environmental and social sustainability must be an integral part of halal ecosystem development. Unfortunately, most studies still focus on economic efficiency and have not significantly incorporated environmental variables.

Meanwhile, Ahmad et al. (2024) propose gamification as a strategy to increase stakeholder engagement, particularly in the context of halal MSMEs. However, the application of this concept in the Indonesian halal sector remains very limited.

Literature Gaps and Conceptual Opportunities

A systematic review by Elnakib and Gallego-Roquelaure (2025) indicates a lack of integration between stakeholder theory and the Pentahelix approach in halal MSME development in developing countries, including Indonesia. Furthermore, cross-theoretical approaches such as governance, RDT, and sustainability have not been used in an integrated manner. This gap opens up theoretical space for the development of a more comprehensive and contextual framework.

METHOD

This research used a qualitative approach with a case study design. This approach was chosen because it aligns with the research objective of an in-depth understanding of the dynamics of interactions between stakeholders in the development of the halal ecosystem in Indonesia, as suggested by Marlina et al. (2025) in their bibliometric study of halal industry development strategies. Case studies allow researchers to explore phenomena in a real-world context in detail and comprehensively. The research locations were three provinces with rapidly growing halal ecosystems: West Java, West Sumatra, and West Nusa Tenggara, with the research period between January and June 2025.

The research subjects were key stakeholders in the halal ecosystem, including local governments, halal industry players (MSMEs and corporations), academics, halal certification bodies, and community organizations. Informants were selected using purposive sampling, with the criteria being a minimum of two years of experience in halal industry development and active participation in the Pentahelix network. The researchers also employed a snowball sampling technique to expand the informant network, as suggested by Prabowo et al. (2025), who studied halal ecosystem development in East Kalimantan. Data collection techniques included semi-structured interviews, participant observation, and documentation. Method triangulation was used to validate the findings by comparing the results of various data collection techniques.

Data analysis was conducted using the interactive model of Miles and Huberman (2014), which includes the stages of data reduction, data display, and conclusion drawing/verification. The coding process was conducted manually using open and axial coding, following the grounded theory approach as applied by Wazin et al. (2024) in their study of sustainable halal tourism development in Indonesia. Data validity was tested through source and method triangulation, member checking with key informants, and an audit trail by recording the entire decision-making and data processing process. With this methodological design, the research is expected to produce reliable findings and provide theoretical and practical contributions to the development of the halal ecosystem in Indonesia.

FINDINGS AND DISCUSSION

This study reveals five key findings from the analysis of 27 semi-structured interviews, participant observation in three regencies/cities in Central Java Province (Semarang City, Wonosobo Regency, and Banyumas Regency), and a review of regional policy documentation related to halal ecosystem development. These findings represent the dynamics of relationships among key actors (stakeholders) and strengthen the Pentahelix-based conceptual framework used in the study.

Table 1. This study presents some informants representing five main stakeholder categories. A total of 27 informants participated in the study.

Institute/Organization	Type of Stakeholder	Years of Experience
Central Java Department of Industry and Trade	Regional Government	8
Central Java LPPOM MUI	Certification Institution	6
Wonosobo Halal Processed Food MSMEs	Business Actors (MSMEs)	4
Semarang State University	Academics	10
Banyumas Halalpreneur Community	Community	5

Obervation results.

Unstructured Coordination and Collaboration Between Stakeholders

The majority of informants stated that there is no permanent forum that regularly brings together all halal stakeholders. An official from the Central Java Department of Industry and Trade stated, "We don't have a regular forum that brings together all halal stakeholders in this region." This reflects the weak cross-sector synergy that underpins the Pentahelix model. This finding confirms the study by Almunawar et al. (2025) that the halal ecosystem in Indonesia remains fragmented, and supports the importance of collaborative governance as proposed by Robina-Ramírez et al. (2022).

Research by Alfianto (2025) also shows that coordination between stakeholders in Indonesia has not yet reached an optimal level. His study of the halal ecosystem in

Indonesia found that coordination activities between institutions are often merely ceremonial without concrete follow-up. This reinforces the need for a more structured collaborative governance model, as proposed by Ansyah et al. (2024) emphasized the need to strengthen halal inspection institutions through cross-sector collaboration.

From field observations, it was identified that existing coordination forums are still sector-specific. For example, local governments have their own forums, as do certification bodies and business communities. The absence of cross-sector forums means that policies adopted by one party do not always align with the needs of others. This aligns with Nuri's (2025) findings in her study of the challenges of halal fintech in Indonesia, which also require cross-sector collaborative governance.

Compared to halal ecosystems in other countries, such as Malaysia and Singapore, Indonesia still lags behind in building effective collaborative governance. In these countries, institutions such as the Halal Development Corporation (HDC) act as the primary coordinator, bridging all stakeholders. This suggests that Indonesia needs similar institutions, or at least the permanent strengthening of regional halal forums.

Halal Information and Literacy Gaps

Limited understanding of halal certification procedures remains a major obstacle, especially for MSMEs. A business owner from Wonosobo said, "If there's no help from the government or the Indonesian Ulema Council (MUI), I don't know where to start." The uneven distribution of halal literacy demonstrates a significant gap between formal regulations and field practice. This supports the findings of Ahmad et al. (2024) regarding the need for innovative educational strategies such as gamification to increase understanding and participation of small business owners.

Observations indicate that official documents from BPJPH and the MUI are still difficult for small business owners to access or understand. This is reinforced by the findings of Prabowo et al. (2025), who revealed that in East Kalimantan, most micro-business owners are unaware of the existence of digital platforms for accessing certification information. A similar situation was found in Central Java, where halal education modules available at several universities are rarely used by the general public.

Furthermore, there is an imbalance in the distribution of information between urban and rural areas. Information and access to halal literacy tend to be better in large cities like Semarang, but are very limited in regencies with limited technology and communication infrastructure. Salisu et al. (2025), in their study on green economy frameworks, emphasized that access to information is a primary prerequisite for building a sustainable halal industry ecosystem.

Government efforts to increase halal literacy through social media and digital platforms have not yet been optimal. Data from Ansyah et al. (2024) shows that only 37% of MSMEs in Central Java actively participate in online halal education programs. This demonstrates the need to integrate halal literacy programs with more adaptive communication strategies based on local needs.

Dependence on the Government as the Dominant Actor

Community stakeholders and business actors stated that halal ecosystem development initiatives are highly dependent on government support and facilitation. "If there are no programs from the government agencies, our activities usually stop," said one community activist in Banyumas. This phenomenon demonstrates a strong dependency structure, as explained in the Resource Dependence Theory by Karudin et al. (2025), which emphasizes the central role of the government and halal logistics providers in driving the system.

Research by Haleem et al. (2024) also shows that stakeholder dependency on the government is not unique to Indonesia but also presents a global challenge in halal supply chain management. However, the level of dependency in Indonesia is relatively high due to the lack of development of independent institutions capable of initiating halal programs independently.

Field observations revealed that private certification institutions and halal communities still lack initiative without government policy or budget support. This contrasts with Malaysia, where institutions such as Jakim have developed independent business units to support the halal ecosystem.

One academic informant stated, "We want to create our own halal education program, but we're hampered by funding and regulatory issues." This situation indicates that, in addition to resource dependence, there is also a structural dependency that reinforces the government's dominance as the primary actor in the system.

Lack of Digital Technology Integration in the Halal Ecosystem

Observations indicate low adoption of digital technology for certification, education, and marketing. An academic from Semarang State University stated, "We have an online halal learning platform, but it hasn't been widely utilized by MSMEs." This finding supports the study by Salisu et al. (2025), which calls for the integration of a green economy approach and digital transformation as key pillars for developing a sustainable halal ecosystem.

In interviews with business owners in Semarang and Wonosobo, the majority stated that they still prefer using manual systems for managing halal certification. Factors such as limited digital literacy, trust in online systems, and infrastructure quality are the main causes of low technology adoption.

Nuri's (2025) study on halal fintech indicates that this sector experiences similar challenges. Although the government is promoting halal digitalization, including Sharia-compliant payments, adoption remains low, particularly among micro-businesses and local communities (Elnakib & Gallego-Roquelaure, 2025).

A comparison with halal digitalization systems in other ASEAN countries reveals significant gaps. Countries such as Malaysia and Brunei have integrated the entire halal certification process online for the past five years, while Indonesia is still in the pilot project stage in several regions.

Differences in Priority Foci Among Stakeholders

Stakeholders in the research area demonstrated significant differences in priorities. The government focuses more on infrastructure development and halal tourism branding, while MSMEs and communities prioritize education and mentoring. A business owner from Semarang stated, "They're building roads and halal signs, but we're still confused about how to manage the certification." This disconnect reinforces Haleem et al.'s (2024) critique of the potential risks in an unequally managed halal supply chain system.

Research by Marlina et al. (2025) also shows that these differing priorities lead to fragmentation in the development of the halal ecosystem. Local governments tend to take major steps, such as developing halal industrial estates, while neglecting basic needs like MSME support.

In some cases, this disconnect has even sparked conflict between stakeholders. For example, in one observed halal tourism area, the local community felt that halal branding favored large private companies, while they themselves struggled to access government programs.

This demonstrates the importance of strengthening collaborative governance models that can align priorities among stakeholders in a more balanced manner. Without this, efforts to build a sustainable halal ecosystem will be difficult to achieve.

CONCLUSION

This study concluded that the development of the halal ecosystem in Indonesia, particularly at the regional level, still faces complex challenges. Key findings include weak coordination among stakeholders, gaps in halal information and literacy, high dependence on the government as the dominant actor, minimal integration of digital technology, and differing priorities among stakeholders. These five findings strengthen the application of stakeholder theory, resource dependence theory, and collaborative governance in the context of the halal ecosystem in Indonesia. This study contributes theoretically by proposing an integrative Pentahelix-based model tailored to local social and economic characteristics, and practically by encouraging the establishment of regional halal coordination forums and the development of digital-based halal certification education platforms.

Policy implications of this study include the need to strengthen government regulations and facilitation to be more adaptive to regional needs, with a focus on empowering MSMEs and the independence of non-governmental organizations. This study also recommends that the halal development strategy in Indonesia should not be solely focused on the food and tourism sectors, but should also extend to the pharmaceutical, cosmetics, and halal finance sectors. For further research, it is recommended to test the conceptual model through a quantitative or mixed-methods approach, as well as explore global factors such as digital transformation and environmental sustainability, which are increasingly relevant in the development of an internationally competitive halal industry.

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