Journal of Halal Ecosystem & Technology
https://doi.org/10.22642/JHET202802

Submitted: 13-04.2026
Revision Requested: 21-04.2026
Accepted: 30-04.2026

Open Access

Review Article

Systemic Challenges and Strategic Pathways in Building Indonesia's Halal Value Network

Erni Sekarwati

Halal Inspection Agency, UIN Walisongo, Semarang, Indonesia

Abstract Indonesia holds a strategic position in the global halal economy, yet its halal ecosystem remains fragmented due to regulatory fragmentation, uneven infrastructure, and varying levels of digital readiness. This study examines systemic barriers to the development of Indonesia's halal ecosystem and proposes the Integrated Halal Value Network (IHVN) Model as a pathway toward network-based integration. Using an integrative systematic literature review guided by PRISMA, peer-reviewed studies and institutional policy documents published between 2014 and 2025 were searched in Scopus, Web of Science, ScienceDirect, and official sources, including BPJPH, Bank Indonesia, and KNEKS. Records were selected based on relevance to halal governance, infrastructure, digital traceability, and ecosystem collaboration, resulting in 62 publications for thematic coding and synthesis. The review identifies four critical challenges: regulatory fragmentation, regional infrastructure gaps, low digital readiness among SMEs, and a compliance-oriented certification mindset. The proposed IHVN Model positions an interoperable digital platform as a keystone mechanism linking governance, strategic resources, and Pentahelix stakeholders. By shifting halal development from certification compliance to network integration, this study contributes a conceptual roadmap for a more coherent, inclusive, and globally competitive Indonesian halal ecosystem.

Keywords Halal Value Network; Governance; Digital Traceability; Harmonization; Sustainability

Corresponding: Erni Sekarwati
email: sekarwatyerni2081@gmail.com; Halal Inspection Agency, UIN Walisongo, Semarang, Indonesia

INTRODUCTION

In recent years, the halal industry has undergone a substantial transformation, expanding beyond its traditional role as a niche religious market into a broader economic system associated with quality assurance, ethical production, and value-driven consumption. Reports indicate that the global halal economy has surpassed USD 2.4 trillion, with continued growth across sectors such as food and beverages, pharmaceuticals, cosmetics, tourism, and Islamic finance (Haleem et al., 2021). This expansion is driven not only by demographic factors but also by increasing consumer demand for transparency, traceability, and ethical integrity.

Indonesia, home to approximately 241.7 million Muslims or 87.02% of its population, holds significant strategic potential within this global landscape (Marnita, 2024). Despite this demographic advantage, the country faces a structural paradox: while it dominates the consumer market, the development of its halal ecosystem remains fragmented and uneven across regions (Prabowo, 2021; Riady et al., 2026).

The enactment of Law No. 33 of 2014 on Halal Product Assurance marked a critical shift from voluntary to mandatory certification. While this reform strengthened legal certainty, it also introduced new coordination challenges involving key institutions such as BPJPH, MUI, and KAN (Yuni, 2021; Faridah, 2019). This situation reflects broader institutional realignment issues commonly observed in emerging regulatory systems.

Existing studies tend to examine halal development in isolation, focusing separately on certification systems, supply chain management, sustainability, or technological traceability. However, limited attention has been given to the interconnections among these dimensions, particularly in understanding how governance, infrastructure, and digital systems interact within a unified ecosystem.

To address this gap, this study proposes shifting from the traditional Halal Value Chain (HVC) to a more systemic Halal Value Network (HVN). Unlike linear models, the HVN emphasizes interdependence among actors and highlights the importance of coordinated value exchange across the ecosystem (Almunawar, 2024).

This review aims to synthesize fragmented literature into an integrated analytical model—the Integrated Halal Value Network (IHVN) Model—to guide Indonesia's national halal policy. The research addresses two key questions:

1. What systemic barriers hinder Indonesia's halal infrastructure development?
2. How can a network-based model strengthen Indonesia's sharia economic ecosystem

THEORETICAL FOUNDATIONS

Institutional Theory

Institutional theory explains how regulatory, normative, and cognitive pillars stabilize economic systems (Scott, 2008). In the halal context, regulatory frameworks (laws and certification standards), normative pressures (religious expectations), and cognitive legitimacy (consumer trust) must align to ensure system stability (Fernando et al., 2023).

Indonesia's halal transition illustrates institutional isomorphism under coercive pressure (mandatory certification), yet incomplete coordination across agencies has generated bureaucratic friction (Yuni, 2021). Institutional coherence is therefore central to ecosystem performance.

Resource-Based View (RBV)

The Resource-Based View emphasizes that sustainable competitive advantage depends on the availability and management of valuable, difficult-to-replicate strategic resources (Barney, 1991). In the halal ecosystem, such resources include certified laboratories, trained auditors, digital systems, and logistics infrastructure. Uneven distribution of these assets weakens national competitiveness.

Network Governance and Ecosystem Theory

Network governance emphasizes collaborative coordination among interdependent actors rather than hierarchical control (Provan & Kenis, 2008). Ecosystem competition theory further argues that value creation increasingly depends on orchestrated networks rather than isolated firms (Adner, 2017).

In halal markets, the integrity of one node affects the credibility of the entire system. Therefore, the halal economy must be modeled as a value exchange network, not merely a supply chain (Almunawar, 2024).

Maqāṣid al-Sharī'ah as Ethical Anchor

Maqāṣid al-Sharī'ah provides a normative framework that emphasizes the protection of faith, life, and wealth (Dusuki & Abdullah, 2007; Kamali, 2008). This perspective ensures that halal development is not only efficient but also aligned with broader social and ethical objectives.

METHODS

This study adopts an integrative Systematic Literature Review (SLR) approach to synthesize existing knowledge on Indonesia's halal ecosystem. Data were collected from major academic databases, including Scopus, Web of Science, and ScienceDirect, as well as policy documents from institutions such as BPJPH, Bank Indonesia, and KNEKS between 2014 and 2025.

Data were collected from Scopus, Web of Science, ScienceDirect, and official institutional publications from BPJPH, Bank Indonesia, and KNEKS. The selection process followed PRISMA guidelines and yielded 62 relevant publications for the thematic synthesis. The PRISMA illustration is shown in Figure 1.

Figure 1 illustrates the methodological workflow used to conduct the literature review and develop the IHVN conceptual model. The process begins with a PRISMA-based flow, followed by the formulation of a search strategy using selected keywords and Boolean strings related to the halal ecosystem, halal supply chain, digital traceability, and Indonesia's halal industry. The retrieved literature is then screened through inclusion and exclusion criteria, assessed for quality, and analyzed using thematic coding to identify four key themes. These themes are organized in a synthesis matrix to compare, integrate, and interpret findings across studies. The final output of this structured review process is the IHVN conceptual model, developed from the synthesized evidence from the reviewed literature.

The analysis was structured around four thematic pillars:

1. Governance and regulatory alignment
2. Infrastructure capacity and laboratory distribution
3. Supply chain and digital traceability systems
4. Multi-stakeholder governance and ecosystem collaboration

The integrative method allows cross-disciplinary synthesis while maintaining methodological transparency.

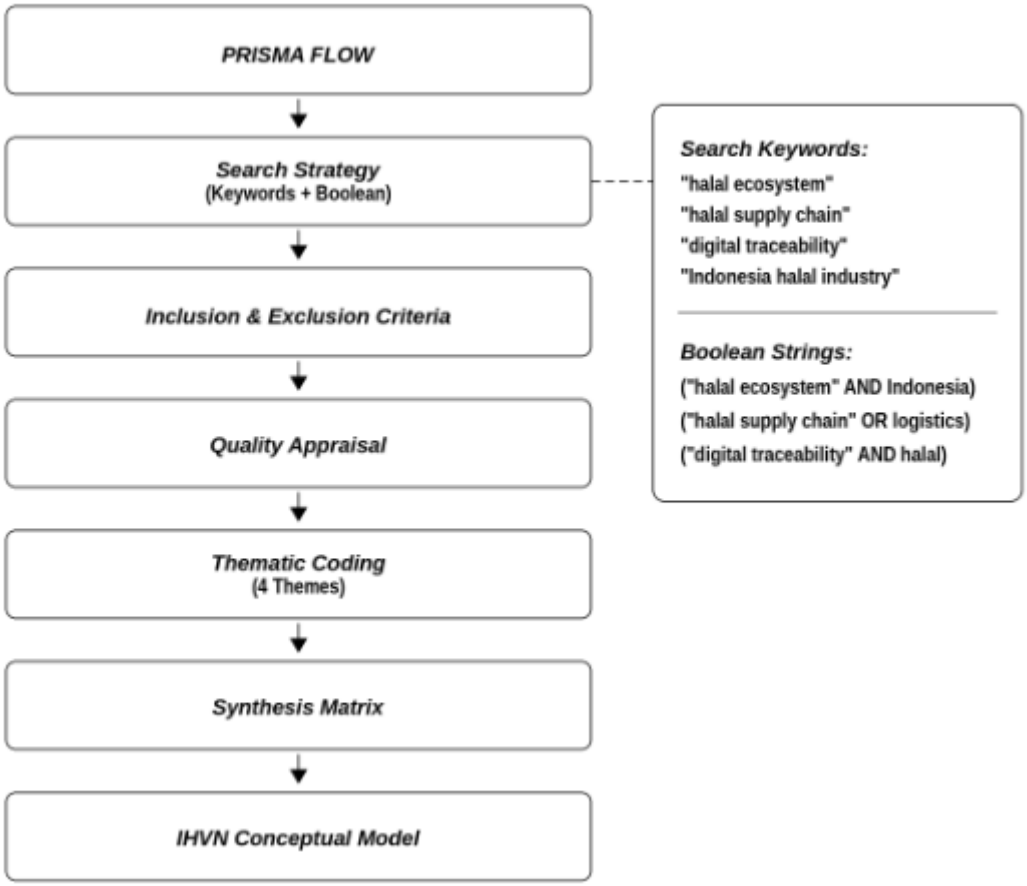

Figure 1. PRISMA-Based Literature Review Workflow for Developing the IHVN Conceptual Model

RESULT

Regulatory and Institutional Fragmentation

The transition of certification authority from MUI to BPJPH marked a regulatory milestone. However, overlapping mandates between BPJPH, MUI, and KAN have slowed implementation (Yuni, 2021). Faridah (2019) notes that inconsistent interpretation of regulatory procedures during the early implementation phase created uncertainty among SMEs.

Regional asymmetry further compounds fragmentation. Certification infrastructure remains concentrated in Java and Sumatra, limiting access for eastern Indonesian regions (Prabowo, 2021; Riady et al., 2026). Institutional decentralization has not yet been matched by capacity equalization.

Infrastructure Gaps and Laboratory Distribution

Scientific validation underpins halal credibility. However, Indonesia's halal laboratories are limited and geographically centralized (Riady et al., 2026). This imbalance delays verification processes and weakens nationwide standardization.

According to RBV logic, infrastructure concentration reduces collective national advantage (Barney, 1991). Halal industrial parks, such as IHIP Sidoarjo, represent promising efforts but remain insufficient to address regional disparities.

Digital Traceability and Logistics Performance

Traceability systems reduce contamination risk and enhance transparency (Fernando et al., 2023). Blockchain adoption in halal supply chains has demonstrated improved integrity and reduced fraud risk (Bux et al., 2022). Indonesia's Logistics Performance Index ranking reflects systemic inefficiencies that increase transaction costs. SMEs face barriers to digital adoption due to limited technological literacy (Haleem et al., 2021). Integrated digital platforms such as SIHALAL serve as foundational keystone mechanisms but require further expansion and interoperability.

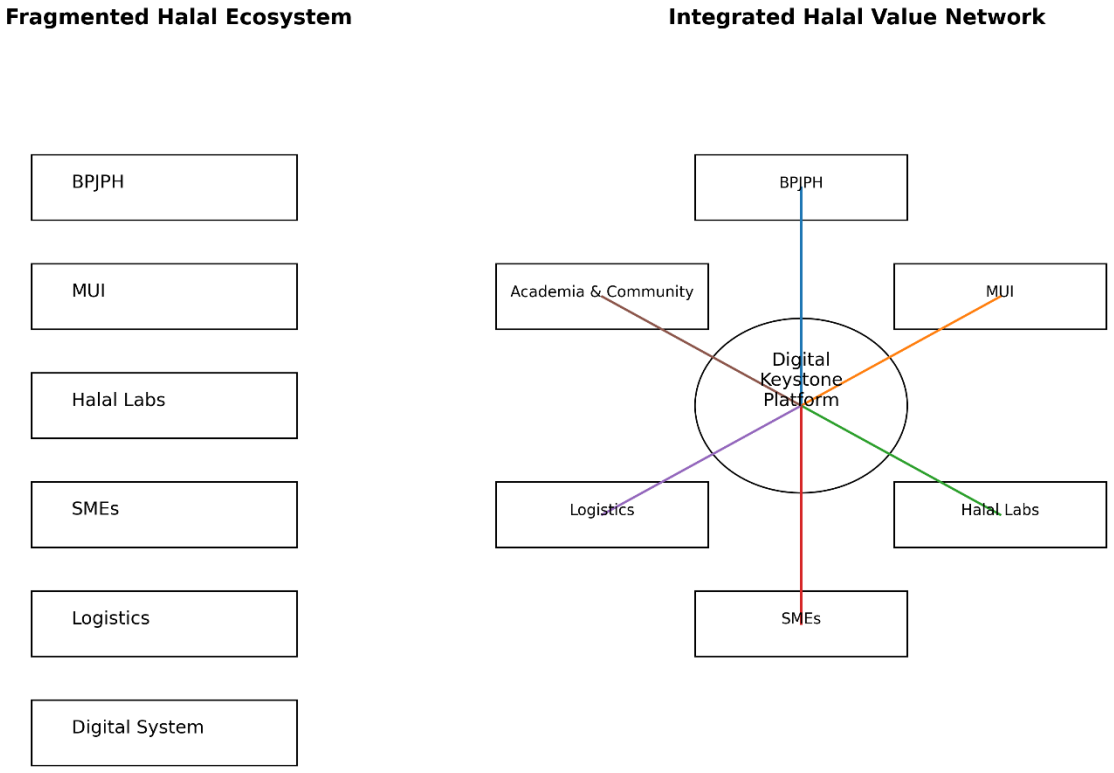

Figure 2. Structural fragmentation in Indonesia's halal ecosystem versus the proposed integrated Halal Value Network

Systemic Barriers in Indonesia's Halal Ecosystem

The synthesis of findings reveals four interrelated systemic barriers that continue to constrain the development of Indonesia's halal ecosystem. First, regulatory silos persist despite institutional reform. The establishment of BPJPH under Law No. 33/2014 was intended to centralize and standardize halal certification. However, overlapping mandates between BPJPH, MUI, and KAN have created coordination inefficiencies and procedural ambiguity (Yuni, 2021; Faridah, 2019). From an institutional theory perspective, this indicates an incomplete alignment between the regulatory and normative pillars, thereby reducing systemic legitimacy (Scott, 2008).

Second, regional capacity disparities undermine inclusive growth. Infrastructure concentration in Java and Sumatra creates uneven access to certification and higher transaction costs for businesses in eastern Indonesia (Prabowo, 2021; Riady et al., 2026). According to RBV logic, strategic resources such as accredited laboratories and trained auditors must be widely distributed to generate sustained national advantage (Barney, 1991).

Third, SME digital readiness remains limited. Indonesia's halal ecosystem is heavily dependent on SMEs, yet many lack technological literacy to adopt digital traceability platforms (Haleem et al., 2021). Without digital inclusion, the ecosystem cannot function as an integrated network.

Fourth, a compliance-centric mindset persists among stakeholders. Certification is often viewed as a bureaucratic requirement rather than a strategic instrument for enhancing value and export competitiveness (Destriyansah et al., 2023). This mindset limits innovation and long-term ecosystem transformation.

Strategic Pathways for Network Integration

To overcome these barriers, Indonesia must adopt integrated strategic pathways rooted in network governance principles (Provan & Kenis, 2008) and ecosystem competition logic (Adner, 2017).

1. Institutional Harmonization

   Institutional harmonization requires clearer delineation of roles between BPJPH and MUI, while strengthening inter-agency coordination mechanisms. Regulatory coherence enhances market confidence and reduces bureaucratic delays (Fernando et al., 2023). Accelerating technical regulations related to service tariffs and certification timelines would increase accountability and transparency.

2. Digital Halal Backbone Development

   Digital infrastructure must function as the ecosystem's keystone. Blockchain-based traceability systems can enhance data integrity and reduce contamination risks (Bux et al., 2022). SIHALAL should be expanded into a fully interoperable platform connecting producers, auditors, laboratories, and customs authorities.

   Digital traceability prevents non-halal contamination in logistics by enabling end-to-end visibility of product movement, segregation compliance, and storage conditions. Real-time verification reduces the probability of cross-contamination and strengthens consumer trust (Fernando et al., 2023).

3. Decentralized Infrastructure Expansion

   Regional development of halal laboratories and industrial clusters is essential. Facilities such as the Indonesia Halal Industrial Park (IHIP) represent important nodes but must be replicated in other provinces (Riady et al., 2026).

The Makassar Halal Port offers strategic benefits for regional exporters by reducing logistics costs, shortening export processing times, and providing integrated halal verification services. By serving eastern Indonesia, the port enhances inclusivity and reduces regional inequality in global market access.

4. Pentahelix-Based Governance

   The Pentahelix model integrates Government, Academia, Business, Community, and Media in collaborative governance (Alfianto, 2025). This approach extends beyond the Triple Helix innovation framework (Etzkowitz & Leydesdorff, 2000) by incorporating civil society and communication channels.

   Government acts as a regulator and policy enabler; academia develops research capacity and halal auditor training; businesses implement operational standards; communities, such as

pesantrens, serve as grassroots production and literacy hubs; media amplifies awareness and transparency.

The Pentahelix model strengthens halal governance by:

a. Facilitating knowledge exchange across nodes
b. Accelerating literacy dissemination
c. Reducing information asymmetry
d. Enhancing collective accountability

Sectoral Node Integration: Halal Tourism as Network Prototype

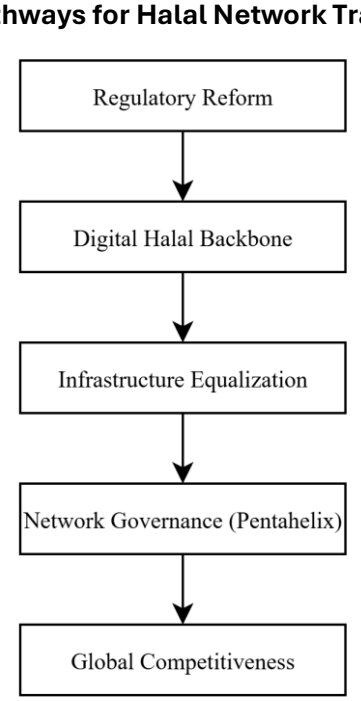

Figure 3. Strategic transformation pathways toward a resilient Indonesian Halal Value Network.

Halal tourism exemplifies ecosystem interconnectivity. Indonesia's top ranking in the Global Muslim Travel Index (GMTI) 2023 reflects integration across culinary services, accommodation, transportation, and Islamic finance (Mutmainah et al., 2025).

Regions such as Aceh and Lombok demonstrate how Muslim-friendly infrastructure can create holistic experiential value (Effendi et al., 2021). However, standardization outside established hubs remains uneven. A network-based approach would ensure that all regional nodes meet minimum infrastructure standards.

Halal tourism highlights how value is co-created across sectors rather than within a single industry. The ecosystem logic thus applies broadly across food, pharmaceuticals, finance, and tourism sectors.

Conceptual Framework: Integrated Halal Value Network (IHVN) Model

This study proposes the Integrated Halal Value Network (IHVN) Model as a systemic framework for Indonesia's halal ecosystem. The Integrated Halal Value Network (IHVN) was depicted in Figure 4.

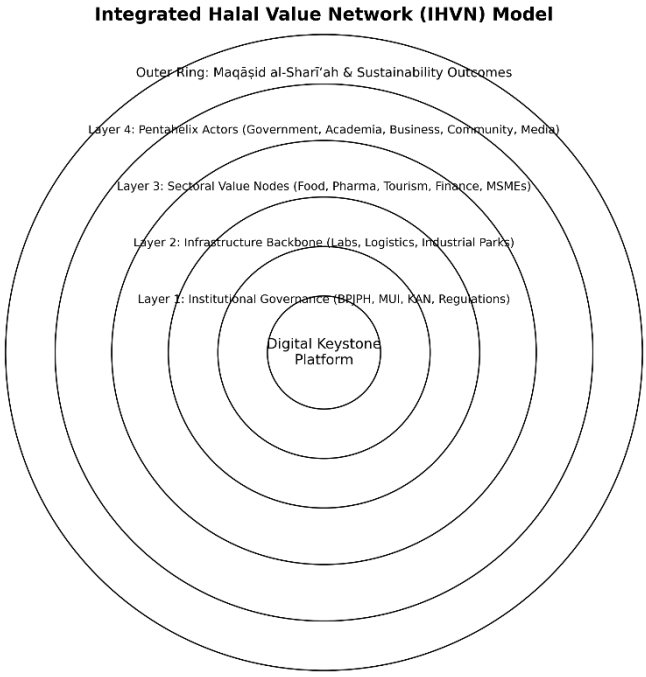

Figure 4. The Integrated Halal Value Network (IHVN) Model integrates institutional coherence, resource mobilization, and maqāṣid-based orientation.

Unlike linear value chain models, the IHVN conceptualizes halal development as a multi-layered network system anchored by a digital keystone platform.
The model integrates three strategic pillars:

1. Institutional Coherence (Institutional Theory Lens)
   Ensures regulatory stability and cross-agency harmonization to maintain market legitimacy (Scott, 2008).

2. Resource Mobilization (RBV Lens)
   Positions laboratories, human capital, digital systems, and logistics corridors as strategic national assets (Barney, 1991).

3. Ethical Orientation (Maqāṣid al-Sharī'ah Lens)
   Guarantees that technological innovation and economic growth remain aligned with social welfare and moral accountability (Dusuki & Abdullah, 2007; Kamali, 2008).

At the center of the IHVN Model lies an Integrated Digital Platform that connects Pentahelix actors and ensures that halal value exchange occurs without "negative value" leakage. This platform functions as the ecosystem keystone (Adner, 2017).

The IHVN framework advances halal scholarship by integrating governance, infrastructure, digitalization, and ethical orientation within a unified analytical structure.

CONCLUSION

Indonesia's ambition to become a global halal hub depends on its ability to shift from compliance-driven certification toward systemic network integration. Regulatory fragmentation,

infrastructure concentration, digital limitations for SMEs, and certification-centric mindsets remain critical barriers.

Strategic transformation requires institutional harmonization, strengthening the digital backbone, expanding decentralized infrastructure, and Pentahelix collaboration. The Integrated Halal Value Network Model provides a conceptual roadmap to guide national policy and future empirical research.

Future studies should empirically test the maturity levels of halal infrastructure across provinces and evaluate the long-term impact of blockchain traceability on export competitiveness.

By embracing a network-based approach, Indonesia can leverage its demographic advantage to emerge not merely as the largest halal consumer market but as a global orchestrator of halal value networks.

REFERENCES

Adner, R. (2017). Ecosystem as structure: An actionable construct for strategy. *Journal of Management, 43*(1), 39–58. https://doi.org/10.1177/0149206316678451

Alfianto, A. N. (2025). Collaboration towards a sustainable halal industry ecosystem: Pentahelix approach. *Jurnal Ekonomi, Akuntansi dan Manajemen Nusantara, 4*(1), 1–10. https://doi.org/10.55338/jeama.v4i1.179

Almunawar, M. N. (2024). *Moving from the halal value chain to the halal value exchange network: Establishing a halal business ecosystem*. UBD School of Business and Economics.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Bux, C., Zhang, Z., & Ahmad, N. (2022). Halal food sustainability between certification and blockchain: A review. *Sustainability, 14*(6), 3582. https://doi.org/10.3390/su14063582

Destriyansah, W., et al. (2023). Analysis of the influence of the halal industry on Indonesia's economic growth. *Wiga: Jurnal Penelitian Ilmu Ekonomi*.

Dusuki, A. W., & Abdullah, N. I. (2007). Maqasid al-Shariah, Maslahah, and corporate social responsibility. *American Journal of Islamic Social Sciences, 24*(1), 25–45. https://doi.org/10.35632/ajiss.v24i1.415

Effendi, D., et al. (2021). Preparing halal tourism regulations in Indonesia. *International Journal of Religious Tourism and Pilgrimage, 9*(1), 58–69.

Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: From national systems to a triple helix. *Research Policy, 29*(2), 109–123. https://doi.org/10.1016/S0048-7333(99)00055-4

Faridah, H. D. (2019). Halal certification in Indonesia: History, development, and implementation. *Journal of Halal Product and Research, 2*(2), 68–78.

Fernando, Y., Tieman, M., & Jabbour, C. J. C. (2023). Traceability technology and halal logistics performance. *Journal of Islamic Marketing, 14*(4). https://doi.org/10.1108/JIMA-07-2021-0214

Haleem, A., Khan, M. I., & Khan, S. (2021). Conceptualizing a framework linking halal supply chain management with sustainability. *Journal of Islamic Marketing, 12*(8), 1535–1555. https://doi.org/10.1108/JIMA-03-2020-0069

Kamali, M. H. (2008). *Maqasid al-Shari'ah made simple*. IIIT.

Marnita, M. (2024). Directions for the development of the halal ecosystem in public policy. *Al-Ishlah: Jurnal Ilmiah Hukum, 27*(2), 156–177. https://doi.org/10.56087/aijih.v27i2.477

Mutmainah, S., Romadhon, M. R., & Sugianto. (2025). Halal tourism ecosystem in Indonesia. *Al-Hijrah Journal of Islamic Economics & Banking*.

Prabowo, S. (2021). Challenges of developing halal ecosystem in Indonesia. In *Proceedings of the International Conference on Halal Industry and Halal Guarantee Systems*.

Provan, K. G., & Kenis, P. (2008). Modes of network governance. *Journal of Public Administration Research and Theory, 18*(2), 229–252. https://doi.org/10.1093/jopart/mum015

Riady, A., Mashuri, A., & Siradjuddin. (2026). Integrated halal infrastructure for strengthening Indonesia's sharia economic ecosystem. *DIRASAH: Jurnal Kajian Islam, 3*(1), 11–24.

Scott, W. R. (2008). *Institutions and organizations*. Sage Publications.

Tieman, M., van der Vorst, J., & Ghazali, M. C. (2012). Principles in halal supply chain management. *Journal of Islamic Marketing, 3*(3), 217–243. https://doi.org/10.1108/17590831211259727

Yuni, L. A. (2021). Problem penerapan UU No. 33 Tahun 2014 tentang JPH. In *Proceedings of International Conference on Halal Industry*.

How to Cite: Sekarwati E, (2026). Systemic Challenges and Strategic Pathways in Building Indonesia's Halal Value Network, Journal of Halal Ecosystem & Technology, 1(1): 21-30