Strengthening Halal Fatwa Governance: Addressing Porcine DNA Findings in Certified Products in Indonesia

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Abstract

This article examines the urgency of strengthening halal fatwa governance in Indonesia following the discovery of porcine DNA in several certified halal products. The incident reveals a structural weakness in the national halal assurance system, particularly the lack of integration between normative Islamic legal reasoning (*ijtihad istinbaṭi*) and empirical verification (*ijtihad taṭbiqi*). Using a qualitative-descriptive and normative juridical approach, this study analyzes how Majelis Ulama Indonesia (MUI) formulates and implements halal fatwas amid increasing technological and industrial complexities. The findings indicate that the credibility of halal certification depends not only on the authority of religious fatwas but also on the scientific integrity of laboratory testing and the transparency of institutional governance. Strengthening halal fatwa governance therefore requires a multidisciplinary framework that aligns religious epistemology, scientific accountability, and public trust. The study concludes that integrating Islamic jurisprudence with evidence-based verification is essential to ensure the sustainability and global credibility of Indonesia's halal ecosystem. This integration redefines the role of MUI and BPJPH from mere certifying bodies into key institutions in advancing *Islamic legal governance* for the halal industry.

Keywords: *Halal fatwa governance, Majelis Ulama Indonesia (MUI), ijtihad integration, porcine DNA, Islamic economic law.*

Abstrak

Artikel ini membahas urgensi penguatan tata kelola fatwa halal di Indonesia sebagai respons terhadap temuan DNA babi pada sejumlah produk yang telah bersertifikat halal. Kasus tersebut mengungkap adanya kelemahan struktural dalam sistem jaminan produk halal nasional,

khususnya pada aspek integrasi antara penalaran hukum Islam yang bersifat normatif (*ijtihad istinbāṭi*) dan verifikasi empiris (*ijtihad taṭbīqi*). Dengan menggunakan pendekatan kualitatif-deskriptif dan yuridis normatif, penelitian ini menelaah bagaimana Majelis Ulama Indonesia (MUI) merumuskan serta mengimplementasikan fatwa halal di tengah kompleksitas industri dan kemajuan teknologi pangan. Temuan penelitian menunjukkan bahwa kredibilitas sertifikasi halal tidak hanya bergantung pada otoritas keagamaan, tetapi juga pada integritas ilmiah pengujian laboratorium dan transparansi tata kelola lembaga. Oleh karena itu, penguatan tata kelola fatwa halal memerlukan kerangka kerja multidisipliner yang mampu menyinergikan epistemologi hukum Islam, akuntabilitas ilmiah, dan kepercayaan publik. Penelitian ini menyimpulkan bahwa integrasi antara yurisprudensi Islam dan verifikasi berbasis bukti menjadi kunci bagi keberlanjutan dan kredibilitas global ekosistem halal Indonesia. Integrasi tersebut menempatkan MUI dan BPJPH bukan hanya sebagai lembaga sertifikasi, tetapi juga sebagai motor penggerak reformasi tata kelola hukum Islam dalam industri halal.

Kata kunci: *tata kelola fatwa halal, Majelis Ulama Indonesia (MUI), integrasi ijtihad, DNA babi, hukum ekonomi Islam*

INTRODUCTION

In recent years, the issue of halal status for food products in Indonesia has resurfaced following scientific findings regarding traces of porcine DNA in several products that had already obtained halal certification. This case not only shook public trust in the national halal product assurance system but also sparked epistemological and juridical debates concerning the validity of the halal *fatwa* issued by the Indonesian Ulema Council (MUI) (Salsabilla, 2025). As a religious institution with the authority to establish halal *fatwas*, the MUI is faced with demands to strengthen governance and scientific verification mechanisms in every legal determination it makes. This phenomenon affirms that in the era of modern food industry, the establishment of halal law cannot rely solely on religious texts but also requires multidisciplinary collaboration that integrates Islamic law, science, and public governance.

Indonesia, with the world's largest Muslim population, has a moral and institutional responsibility to maintain the integrity of its halal assurance system. Since the enactment of Law Number 33 of 2014 concerning Halal Product Assurance (JPH) and the establishment of the Halal Product Assurance Organizing Agency (BPJPH), the halal certification system in Indonesia has undergone significant changes (Usmi et al., 2024). However, its implementation still faces serious challenges, especially in synchronizing the role of the MUI as a fatwa issuer, BPJPH as a regulator, and the Halal Inspection Agency (LPH) as a technical implementer (Suparto et al., 2016). The findings of pig DNA in halal-certified products show that there are gaps in governance, both in terms of procedural, laboratory, and data integrity (Septiani, 2019). This condition indicates

that the national halal system still requires institutional strengthening, process transparency, and stricter oversight to ensure its validity and public trust.

This phenomenon not only raised social awareness but also presented methodological challenges in Islamic economic law, particularly regarding how halal *fatwas* are produced and and verified. Historically, observing the determination process, the issuance of halal *fatwas* by the MUI is based on two models of *ijtihad*: *istinbāṭī* (normative-deductive) and *taṭbīqī* (applicative-empirical) (Mutiani & Burhanuddin, 2023). However, in practice, there is often an imbalance between the normative legitimacy of the text and the empirical validity of laboratory test results. This lack of integration opens space for procedural errors and even the discrepancy between the *fatwa* and scientific facts (Nurul Hikmah et al., 2025). Therefore, strengthening the governance of halal *fatwas* becomes an academic and policy urgency to bridge the gap between *fiqh* (Islamic jurisprudence) epistemology and modern scientific methodology within the halal assurance system.

On a global level, similar issues have also emerged. Countries with large Muslim populations such as Malaysia, Brunei Darussalam, and the United Arab Emirates have developed halal certification systems that integrate religious *fatwas* and scientific laboratories through institutions like JAKIM (Malaysia) and ESMA (UAE) (Adawiyah et al., 2025; Haji Sulaiman & Hashim, 2021; Rtm, 2025). Study by (Susanty et al., 2025) highlighting cases where traces of porcine DNA fragments or contamination were found in food/processed products that had previously obtained a halal certificate. This led to a shock in public trust toward the certification system. These cases demonstrate that scientific detection (laboratory testing, PCR/RT-PCR methods, sample chain) is a crucial point in modern halal verification, both for identifying contamination and for validating certificate claims. This affirms that the integration of Sharia law and science governance is the main key to maintaining public trust in halal certification (Susanty et al., 2025). However, in the Indonesian context, previous researches such as Agus (2017) and Putri (2021) still highlight the normative aspects of the MUI fatwa without exploring the aspects of governance, process integrity, and institutional responses to scientific dynamics such as the findings of pig DNA (Agus, 2017; Putri, 2021). This opens up new research space to reassess the extent to which the halal fatwa mechanism in Indonesia is able to adapt to the complexity of the modern food industry.

Literature reviews on halal *fatwas* in Indonesia have so far tended to be divided into two main streams. The first is theological studies, focusing on the authority of the MUI and the religious basis for issuing *fatwas*. The second is sociological studies, which examine public acceptance of halal products and perception of the *fatwa* institutions. However, few studies have reviewed the aspect of governance—namely, how the systems, oversight mechanisms, and institutional accountability work to ensure the validity of halal *fatwas*. In the context of modern Islamic economic law, however, governance is a critical dimension for ensuring accountability and transparency in

accordance with *maqāṣid al-syarī'ah*, especially the values of justice (*'adl*) and public interest (*maṣlaḥah*) (Wasik, 2025).

A research gap emerges when previous studies still focused on the *fiqhiyyah* dimension and have not extensively reviewed the institutional governance aspect of halal *fatwas* systematically. Studies such as those by Fauzia & Prabowo (2022) and Maulana (2024) have indeed touched upon the roles of the MUI and BPJPH (Fauzia & Prabowo, 2022; Maulana, 2024), but haven't further explored the epistemological and institutional synergy between religious *fatwas* and scientific verification. Yet, in the context of the globalized halal supply chain, the accountability of the *fatwa* institutions and the transparency of the certification process are strategic issues that affect the national halal economy's competitiveness. Thus, this article seeks to fill this gap by critically examining the governance structure of halal *fatwas* in Indonesia, especially in facing the public trust crisis resulting from the discovery of porcine DNA in certified products.

The urgency of this research also lies in its relevance to the Sustainable Development Goals (SDGs), particularly the aspect of responsible consumption and production (SDG 12). Strengthening the governance of halal *fatwas* not only impacts religious credibility but also economic and social dimensions. Halal products have now become a global commodity with a market value reaching trillions of dollars, and trust in the *fatwa* institutions is a key factor in measuring the reputation of halal-producing countries (Japar et al., 2024). In this context, Indonesia has the potential to become a global halal hub if it is able to build a fatwa system that is reliable, scientific, and adaptive to the development of food technology and the ethical demands of global Muslim consumers.

Therefore, this article aims to comprehensively analyze the governance of halal *fatwas* in Indonesia, focusing on the MUI's response to the discovery of porcine DNA in certified products. This research will identify the weaknesses and strengths of the halal *fatwa* system, assess the mechanism for integration between the determination of *shar'i* law and laboratory testing, and offer a *fatwa* governance model based on transparency, accountability, and scientific integrity. Thus, this article is expected to provide a theoretical contribution to the development of contemporary Islamic economic law methodology while also offering policy recommendations that can strengthen the national halal assurance system in facing the challenges of the modern food industry.

RESEARCH METHODS

This study uses a qualitative approach with a type of juridical-empirical research combined with a socio-normative approach (Sutisna & Misno, 2019). This approach was chosen because the issue of strengthening the governance of halal fatwa not only concerns the normative aspects of Islamic law, but also touches on institutional, social, and public policy dimensions. By nature, this study is descriptive-analytical, aiming to

comprehensively describe the mechanism for determining and governing halal fatwa in Indonesia and analyzing the response of the Indonesian Ulema Council (MUI) to the findings of pig DNA in halal-certified products (Sukiati, 2016). The research object is focused on the institutional and procedural systems involving the MUI, BPJPH, and the Halal Inspection Agency (LPH), by highlighting the aspects of accountability, transparency, and scientific integrity in the *fatwa* process. To understand this dynamic, the research examines the relationship between the principles of Islamic law (*maqāṣid al-syarī'ah*) and modern scientific mechanisms in halal product assurance. Thus, this study does not merely explain the legal text but also traces how religious norms are translated into institutional policy and practice.

The data sources in this research consist of primary and secondary data. Primary data were obtained through in-depth interviews with key informants, namely members of the MUI Fatwa Commission, BPJPH officials, halal auditors, and food biotechnology experts involved in the halal verification process (Sulaiman Saat, 2020). Meanwhile, secondary data were collected through documentation study of MUI *fatwas*, laboratory test reports, relevant laws and regulations (Law No. 33 of 2014 and Government Regulation No. 39 of 2021), as well as current academic literature and research findings (Hikmawati, 2020). The data collection technique was carried out using non-participatory observation and document analysis, also known as unobtrusive observation, to trace the consistency between the normative basis of the *fatwa* and the results of scientific verification (Hasanah, 2016). The data obtained were then analyzed using inductive and comparative analysis methods (Pasaribu, 2022), which involves three stages: (1) data reduction to sort out relevant information, (2) data display in a thematic format to identify relational patterns between actors and governance mechanisms, and (3) conclusion drawing using a source triangulation approach to ensure the validity and reliability of the research findings (Sahir, 2022). This approach allows researchers to discover a halal *fatwa* governance model that is more transparent, accountable, and adaptive to the development of modern food science and technology, while still being based on the principles of Islamic economic law.

RESULTS AND DISCUSSION

The Constellation of Halal Fatwa Governance in Indonesia: Structure, Roles, and Institutional Dynamics

The institutional architecture of the halal product assurance system in Indonesia is a complex configuration involving interaction between three main actors: the Indonesian Ulema Council (MUI) as the *fatwa* authority, the Halal Product Assurance Organizing Agency (BPJPH) as the state regulator, and the Halal Inspection Agency (LPH) as the technical implementer in the field. Conceptually, the relationship between these three institutions reflects a dual authority model between state law and Islamic law. The MUI holds epistemic authority in determining the halal-haram ruling based on *fiqh*

(Islamic jurisprudence) principles, while the BPJPH manages the administrative procedures, and the LPH carries out empirical inspection of the products (BPJPH, 2024). However, in practice, the institutional interaction does not always run synchronously, especially when a case emerges that tests the legitimacy of the system, such as the finding of porcine DNA in products that have already been halal-certified (Arrasyid, 2025).

In the context of Indonesian positive law, the MUI *fatwa* occupies a unique and ambiguous position. Normatively, a *fatwa* is not a formally binding source of law like a statute, but sociologically, it holds high legitimating power in the eyes of the Muslim community (Pelu, 2019). The integration of the MUI *fatwa* into the national legal system through Law Number 33 of 2014 concerning Halal Product Assurance presents a new dynamic: the state recognizes religious authority, yet also subjects it to administrative legal mechanisms. This raises a theoretical debate about legal pluralism and the boundaries of religious institutional autonomy within the national legal structure. When the MUI issues a *fatwa* based on *fiqh* principles such as *istishab* or *saddu al-dzari'ah*, the state, through the BPJPH, still demands empirical verification that complies with scientific and regulatory standards. This is where the epistemological tension emerges between religious authority and state bureaucracy.

Coordination between MUI, BPJPH, and LPH is basically regulated through a halal certification mechanism that is hierarchical and procedural (Fahi, 2025). However, in practice, the division of authority often does not run effectively. The BPJPH, as the regulator, faces obstacles in data synchronization with the LPH and MUI, especially in the audit process, reporting, and validation of inspection results. Meanwhile, the MUI often holds that the final decision on the halal status remains a religious domain that cannot be fully intervened by the state. The lack of data system interoperability among these institutions creates gaps in post-certification oversight, making the case of porcine DNA findings in halal-certified products an indicator of weak structural communication and cross-institutional control mechanisms.

These issues point to systemic governance challenges: overlapping authority, weak data integration, and a lack of process transparency. Within the framework of governance theory, this situation represents fragmented authority that hinders the effectiveness of the halal assurance system (Ramaditya Rahardian, 2024). Transparency of audit results, openness of laboratory data, and clarity of accountability lines between the LPH, BPJPH, and MUI become crucial prerequisites for building public trust. Without governance reform based on accountability and collaboration, the credibility of halal *fatwas* is potentially eroded by public perception of inconsistency and weak oversight. In the context of the globalization of the halal industry, this institutional disharmony can also affect Indonesia's competitiveness in the international halal market.

Academically, this discussion affirms that the governance of halal *fatwas* in Indonesia is still sectoral and not yet systemically integrated. An institutional synergy model is needed that not only unites religious and state legal authorities but also builds a collaborative platform based on data and public transparency. Such a model could take the form of an integrated halal governance framework, where the MUI, BPJPH, and LPH do not operate in parallel but in a mutually reinforcing coordinative network. Thus, when a crisis of trust occurs, such as the finding of porcine DNA, the halal assurance system is not only capable of reacting but is also responsive, adaptive, and based on public accountability. The reform of halal *fatwa* governance is not merely a technocratic agenda but an epistemological and moral effort to safeguard the purity of the halal value as part of the *maqāṣid al-syari'ah* in modern life.

Public Trust Crisis and the Discovery of Porcine DNA: Testing the Accountability of the Halal Fatwa System

The phenomenon of porcine DNA discovery in products that had been halal-certified in Indonesia creates an epistemological and social shock to the legitimacy of the halal *fatwas* issued by the Indonesian Ulema Council (MUI) (BPJPH, 2025). This incident not only triggered controversy in the public sphere but also tested the credibility of the halal product assurance system, which had long been considered established. The public, especially Muslim consumers, responded to the case with shock, disappointment, and suspicion regarding the effectiveness of religious institutions and the state's credibility in overseeing the halal certification chain. Narratives on social media showed a wave of disappointment leading to a fundamental question: to what extent can the MUI halal *fatwa* still be used as a moral and legal reference in the consumption practices of the Muslim community. This crisis of trust signals a shift in public perception from symbolic belief in the halal label toward a rational demand for transparency and scientific accuracy in the *fatwa* determination process.

More deeply, this case reveals systemic causes rooted in the weak integration between scientific verification and religious validation. This weakness is apparent in the communication gap between the testing laboratories, the Halal Inspection Agency (LPH), and the MUI Fatwa Commission. The DNA testing procedures carried out at the laboratory level are often not synchronously confirmed with religious mechanisms, leading to a potential misinterpretation of scientific results, which are often probabilistic in nature (Arrasyid, 2025). In this context, the scientific and normative approaches run on two separate tracks: the laboratory emphasizes empirical evidence, while the MUI prioritizes *fiqh* (Islamic jurisprudence) principles and the principle of caution (*ihtiyath*). This epistemic disjointedness creates a blind spot in the halal certification process, where scientific results have not been fully integrated into a systematic legal derivation (*istidlal*) framework.

From the perspective of accountability and scientific due diligence, this case indicates that the verification mechanism for halal *fatwas* has not yet reached the scientific standards expected in modern governance (Persson & Persson, 2022). In a globalized world that demands transparency and objectivity, the halal certification process ideally should not only meet *shar'i* principles but also the principle of scientific accountability (Cania & Nurlaila, 2024). The MUI, as the *fatwa* authority, should have an evidence-based *fatwa* process mechanism, where every legal decision must pass validated and traceable laboratory data tests. In this regard, collaboration among *fiqh* experts, food scientists, and halal auditors is crucial to ensure that the halal *fatwa* is not only normatively legitimate but also empirically valid. The lack of an open and independent audit system leads to difficulties in performing traceability of the tested products, ultimately weakening the *fatwa*'s legitimacy in the public eye.

The views of scholars, halal auditors, and academics in various forums indicate a shared awareness of the need for fundamental reform in the mechanism for testing and validating halal data. Some scholars emphasize the importance of strengthening *ijtihad jama'i* (collective scholarly reasoning) that involves multidisciplinary sciences, not just *fiqh* but also biotechnology, food chemistry, and information systems (Maskumi et al., 2024; Muallifah & Imron, 2024). Halal auditors propose the establishment of an independent halal testing council tasked with verifying laboratory results before they are submitted to the MUI. Meanwhile, academics highlight the urgency of building a new halal *fatwa* epistemology based on the integration of science and religion (*integrated epistemology*), where religious authority does not negate the role of scientific data as an instrument of modern *istidlal* (legal derivation). Thus, a *fatwa* is no longer understood merely as a product of textual *ijtihad*, but also as a result of cross-disciplinary collaboration that reflects *maqāṣid al-syarī'ah* in a contemporary context.

Academically, the public trust crisis resulting from the porcine DNA discovery is not merely a technical error but a reflection of the failure of the epistemological governance of the halal *fatwa*. When the public loses faith in the certification mechanism, what is at stake is not only the institution's reputation but also the moral authority of Islamic law in the modern public sphere. Therefore, a reconstruction of the halal *fatwa* epistemology is necessary, based on scientific data, institutional accountability, and information transparency. The halal *fatwa* in the industry 4.0 era can no longer stand solely on symbolic authority but must be rooted in scientific methodology that can be tested and verified. By integrating the principles of *scientific transparency* and *shar'i authenticity*, the governance of halal *fatwas* in Indonesia can be strengthened to answer future challenges while restoring public trust in the integrity of the national halal system.

Integration of *Ijtihad Istinbāṭī* and *Ijtihad Taṭbīqī*: The Paradigm of Progressive Fiqh in Fatwa Governance

In the discourse of contemporary Islamic economic law, the integration of two *ijtihad* models—*ijtihad istinbāṭī* (normative-deductive) and *ijtihad taṭbīqī* (applicative-empirical)—has become a fundamental issue in efforts to strengthen halal *fatwa* governance. The first model, *ijtihad istinbāṭī*, is rooted in textual reasoning that interprets the main sources of Islamic law, such as the Qur'an, Hadith, *ijma'* (consensus), and *qiyas* (analogy), to produce normative rulings. Meanwhile, *ijtihad taṭbīqī* emphasizes the application of Islamic legal principles in empirical contexts, taking into account data, facts, and scientific developments. In the context of halal *fatwas*, these two models should operate synergistically, not dichotomously (Fatimah, 2011). However, institutional practice in Indonesia indicates that *fatwas* often place more emphasis on the textual *istinbāṭī* approach, while the *taṭbīqī* dimension—which involves science and laboratory data—has not been strongly institutionalized in the decision-making process.

Conceptually, *ijtihad istinbāṭī* plays a crucial role in maintaining the continuity of the normative authority of Islamic law. This approach ensures that the *fatwa* remains within the framework of *maqāṣid al-syarī'ah*, especially in preserving the sanctity of Muslim consumption (*ḥifẓ al-dīn* and *ḥifẓ al-nafs*). However, when faced with the complexity of the modern food industry, which involves biotechnology, genetic engineering, and synthetic food additives, the normative approach alone is no longer sufficient. This is where the urgency of *ijtihad taṭbīqī* emerges—namely, the effort to contextualize *fiqh* principles through instruments of science and technology. Porcine DNA testing, for example, is not just laboratory verification, but is part of the legal derivation (*istidlāl*) process that strengthens the empirical dimension of a product's halal status. Thus, legal decision-making is based not only on text but also on scientific evidence that is methodologically accountable.

So far, the Indonesian Ulema Council (MUI) as the *fatwa* authority tends to prioritize a textual approach within the *istinbāṭī* framework, especially when responding to halal-haram issues in industrial products. *Fatwas* are formulated based on *fiqh* principles and the principle of caution (*iḥtiyāṭ*), minimizing the risk of Sharia violations. However, this approach often faces limitations when confronted with phenomena that require empirical validation, such as the discovery of porcine DNA in halal-certified products. In practice, laboratory test results are often treated as supporting data, not as a core epistemological element in the legal determination process. This creates an epistemic gap between the legal basis (*dalil*) and the data, between a text-based *fatwa* and the continually evolving empirical reality. Consequently, the governance of halal *fatwas* risks losing its scientific legitimacy amid public demands for transparency and scientific accuracy.

To bridge this gap, an epistemological synthesis model is needed that integrates *ijtihad istinbāṭī* and *taṭbīqī* into one unificative framework. This model is not intended to blur the boundaries between text and context but to create a methodological dialogue between revelation and scientific data. In this framework, the *shar'i* ruling (*dalil*) functions as an ontological norm, while laboratory data become the epistemic evidence that verifies the application of that norm in empirical reality (Solihin et al., 2024). For instance, in the case of porcine DNA testing or industrial food additives, the legal decision cannot solely be based on the principle of *al-yaqīn lā yazūl bi al-syakk* (certainty is not overruled by doubt), but needs to be supported by scientific methodology that objectively ascertains the level and source of the contaminant. This integration can be formulated as a form of *ijtihad istidlālī mutakāmil*—a comprehensive legal derivation (*ijtihad*) that balances between the authority of the text and the credibility of the data.

Thus, a progressive reading of *fiqh* that connects Sharia law with modern science becomes a crucial foundation for strengthening credible halal *fatwa* governance. In the era of the global halal industry, the legitimacy of a *fatwa* is not only measured by its compliance with the *nash* (religious text) but also by the *fatwa* institution's ability to adopt a scientific approach that is transparent, objective, and accountable. The integration of these two *ijtihad* models allows for the emergence of a new paradigm in Islamic law—that a *fatwa* is not just a religious product but also an instrument of knowledge governance that unifies spiritual values and empirical evidence. By building halal *fatwa* governance based on this epistemological synthesis, Indonesia has the opportunity to become a global model in the development of Islamic economic law that is adaptive, scientific, and remains deeply rooted in Sharia principles.

Model for Strengthening Halal Fatwa Governance: Transparency, Accountability, and Multidisciplinary Collaboration

The need for a new halal *fatwa* governance model in Indonesia is becoming increasingly urgent, parallel to the rising complexity of the global halal industry and the emergence of cases that shake the credibility of halal certification bodies, such such as the discovery of porcine DNA in certified products. The governance model proposed in this study is based on three main principles: transparency, accountability, and scientific integrity. Transparency is required so that the *fatwa* determination process can be objectively accessed and monitored by the public; accountability demands a clear mechanism for responsibility between the MUI, BPJPH, and LPH; while scientific integrity asserts the necessity of a halal *fatwa* based on verifiable empirical evidence. In the context of Sharia economic law, these three principles not only reflect technocratic values but also manifest the ethics of trust (*amanah*) and honesty (*ṣidq*) in the enforcement of Islamic law, which directly impacts public trust and the stability of the national halal industry.

Institutional reform becomes the second pillar in strengthening halal *fatwa* governance. This study recommends the integration of a national halal information system that unifies all certification process data, laboratory results, and *fatwa* documents into a single interoperable digital platform. This system will reduce administrative redundancy, prevent overlapping authority, and facilitate the real-time tracking and verification of halal products. Furthermore, strengthening the capacity of *ulama*-scientist human resources is a strategic necessity. The MUI and BPJPH need to build joint training mechanisms between *fiqh* experts and food scientists to create hybrid expertise capable of reading *shar'i* texts while also understanding the language of modern science. Moreover, a Halal Fatwa Ethics Council is needed—an independent institution tasked with maintaining the integrity of the *istidlal* (legal derivation) process, ensuring no conflict of interest, and overseeing ethical compliance in the relationship between religious institutions, the government, and the industry.

In the epistemological framework, this new governance model emphasizes the importance of cross-disciplinary collaboration among *fiqh* experts, biotechnology scientists, legal academics, and public regulators (Muallifah & Imron, 2024). Modern halal law can no longer stand on a single normative discipline, as contemporary issues such as genetic engineering, food engineering, and biotechnology demand a multi-dimensional approach (Fai Uma, 2023). This collaboration allows for the emergence of an *epistemic dialogue* between the *shar'i* ruling (*dalil*) and scientific evidence, so that *fatwa* decisions can be accounted for both theologically and empirically. Islamic legal experts play a role in safeguarding the purity of Sharia principles, scientists ensure technical validity, while regulators guarantee administrative compliance and consumer protection. In such an ecosystem, the halal *fatwa* becomes a collective product based on cross-disciplinary *ijtihad jama'i* (collective scholarly reasoning) that reflects the integrative spirit between revelation and intellect.

Furthermore, ideal halal *fatwa* governance is not solely oriented toward procedural effectiveness but must also be grounded in *maqāṣid al-syarī'ah* as a moral and philosophical orientation. The principles of *ḥifẓ al-dīn* (protection of religion), *ḥifẓ al-nafs* (protection of life/self), and *ḥifẓ al-māl* (protection of wealth) must serve as the ethical framework for every stage of decision-making. *Maqāṣid al-syarī'ah* provides a normative direction so that *fatwa* governance does not merely become entangled in legal formalities, but serves as an instrument for public interest (*maslahah 'āmmah*). In a global context, the application of *maqāṣid* also strengthens Indonesia's halal diplomacy—showing that the national halal certification system is not merely an administrative instrument but an expression of Islamic ethics of justice and social responsibility in the realm of international industry and trade (Feriati et al., 2025).

Conceptually, this model attempts to address the gap between normative law and the regulative system by offering a governance design based on the synergy of scientific knowledge and Islamic moral values. By integrating the principles of transparency,

accountability, and scientific integrity, institutional reform, and cross-disciplinary collaboration oriented toward *maqāṣid al-syarī'ah*, Indonesia can strengthen its position as a credible and highly competitive global halal industry hub. The halal *fatwa* is no longer positioned merely as a product of religious law but as an integrated knowledge system that combines Sharia, science, and modern governance. This model is expected to be a conceptual and practical reference for other Muslim countries in developing halal *fatwa* governance that is just, scientific, and oriented toward public interest (*maslahat al-ummah*).

CONCLUSION

The discovery of porcine DNA in several halal-certified products in Indonesia reveals structural weaknesses in the governance of the national halal assurance system, especially in the synchronization between religious *fatwas* and scientific verification. This case demonstrates that the legitimacy of *shar'i* law cannot stand alone without the support of accurate and transparent scientific mechanisms. In this context, strengthening halal *fatwa* governance becomes an urgent necessity to safeguard the epistemological integrity and public trust in religious institutions, particularly the Indonesian Ulema Council (MUI). This research affirms that the halal *fatwa* determination system must transform from a traditional, dominantly normative model to an integrative model that combines *ijtihad istinbāṭī* (normative-deductive) and *ijtihad taṭbīqī* (applicative-empirical). This transformation not only asserts the importance of collaboration between scholars and scientists but also demands a mechanism for public accountability, laboratory transparency, and independent oversight so that the halal *fatwa* possesses both scientific validity and *shar'i* authority. Thus, Islamic law in the economic sector does not stop at the theological level but develops into a system of social ethics that is responsive to industrial reality and the needs of modern consumers.

Furthermore, strengthening halal *fatwa* governance is not merely an internal religious agenda but also a national strategy to build Indonesia's credibility in the global halal industry ecosystem. The integration of Islamic law, institutional governance, and technological innovation becomes the main pillar in realizing a sustainable halal assurance system (*sustainable halal governance*). For this purpose, a new halal *fatwa* paradigm must be built based on the principles of transparency, scientific integrity, and public accountability while remaining grounded in *maqāṣid al-syarī'ah* as its ethical soul. With this step, the MUI and BPJPH not only act as certification authorities but also as drivers of epistemological reform in Islamic economic law. The results of this research are expected to contribute conceptually to the development of *Islamic legal governance* that is adaptive to the dynamics of the times, and to provide policy recommendations for the government and *fatwa* institutions in strengthening public trust in the national halal system. Thus, strengthening halal *fatwa* governance not only preserves the sanctity of

Islamic law but also reinforces Indonesia's position as an integral, credible, and globally competitive world halal reference center.

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