

Strengthening Global Halal Supply Chains Through Shariah-Compliant Governance and Digital Traceability: Challenges and Strategic Opportunities in a Globalized Economy

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ABSTRACT

Background: The expansion of global trade has positioned halal supply chains as a critical pillar in Islamic economic systems, particularly as Muslim and non-Muslim markets increasingly demand products that meet rigorous Shariah standards. Yet, the complexity of cross-border logistics, inconsistent certification practices, and frequent incidents of fraud continue to challenge the credibility and governance of halal value chains in the global market.

Aims: This study aims to examine the structural challenges facing global halal supply chains while identifying strategic opportunities for strengthening Shariah-compliant governance. It specifically evaluates how ethical principles, regulatory harmonization, and digital traceability technologies can collectively enhance the resilience and legitimacy of halal logistics.

Method: The research adopts a qualitative analytical approach informed by literature synthesis, regulatory review, and expert perspectives. Islamic economic principles serve as the interpretive foundation, enabling an assessment of both operational practices and their alignment with Shariah requirements.

Result: The findings reveal three dominant challenges: fragmented certification standards, persistent cross-contamination risks, and widespread mislabeling driven by weak oversight. At the same time, globalization has created new opportunities, including broader market integration, rising ethical consumerism, and the use of blockchain-based traceability systems that improve transparency and reduce fraud.

Conclusion: The study concludes that the long-term sustainability of halal supply chains depends on embedding Shariah-compliant governance within every stage of production, certification, and distribution. Strengthening mutual recognition frameworks among regulatory bodies, expanding digital verification tools, and enhancing stakeholder accountability are essential for restoring trust in global halal trade. When combined, these elements create a coherent pathway for building a transparent, ethical, and competitive halal economic ecosystem capable of meeting both contemporary global demands and core Islamic values.

ARTICLE HISTORY

Submitted: Nov 05, 2025

Revised: Oct 10, 2025

Accepted: Dec 28, 2025

KEYWORD

Digital Traceability
Global Halal Supply Chain
Islamic Economic Governance
Shariah Compliance
Supply Chain Transparency

INTRODUCTION

The rapid expansion of global trade has intensified the relevance of halal supply chains as an essential component of contemporary Islamic economic systems, particularly as the halal market evolves into a mainstream driver of international commerce. Growing consumer expectations for Shariah-compliant products have expanded beyond traditional food sectors, stimulating new value-chain dynamics that require both ethical governance and technological sophistication to ensure credibility. Despite this expansion, persistent inconsistencies in certification protocols and logistical standards across borders continue to undermine trust and operational stability. These challenges are increasingly urgent as Muslim consumer markets represent one of the fastest-growing segments globally, making halal governance an important part of economic competitiveness. Researchers have emphasized that a robust halal ecosystem requires alignment between Shariah principles, regulatory frameworks, and evolving industry practices to sustain long-term integrity (Raimi et al., [2025](#); Razak et al., [2025](#)). Without unified standards, the global halal supply chain remains vulnerable to mislabeling, fraud, and cross-contamination. Consequently, research that integrates Islamic ethical foundations with modern supply

chain realities becomes essential for ensuring that halal remains both spiritually meaningful and economically viable in a globalized environment.

The urgency of this topic is amplified by accelerated digitalization across global trade networks, which is reshaping how traceability, authentication, and cross-border oversight are implemented. As supply chains expand geographically, the risks associated with fragmented documentation, weak supervision, and inconsistent regulatory enforcement become even more pronounced. These risks are not merely operational but also existential, as they can erode the legitimacy of halal labels that millions of Muslim consumers depend upon. Emerging technological solutions, particularly blockchain, offer opportunities to strengthen transparency, reduce fraud, and improve the reliability of halal certification systems (Bux et al., [2022](#); Ellahi et al., [2025](#)). However, the adoption of such technologies faces structural gaps, especially in regions where digital infrastructure and regulatory integration remain limited. The intersection between digital advancements and Shariah governance thus presents a compelling research frontier. Exploring this intersection becomes especially important for designing halal ecosystems that are adaptable to global market pressures without compromising religious authenticity.

Furthermore, the economic importance of halal industries—ranging from food, cosmetics, pharmaceuticals to logistics—highlights why research on governance and traceability must be prioritized. Countries competing in the halal sector increasingly depend on strong institutional arrangements to secure consumer confidence and expand global market access. Several studies illustrate that the halal ecosystem's sustainability depends on its ability to harmonize ethical requirements with international supply chain efficiency (Haleem et al., [2021](#); Mustapha et al., [2024](#)). This suggests that Islamic economic principles must be embedded not as symbolic features but as operational pillars guiding certification, logistics, and stakeholder accountability. As the halal supply chain becomes more complex and multinational, the need for reliable governance grows proportionally. For policymakers and industry actors, filling these governance gaps is integral to strengthening halal industry competitiveness. Therefore, this topic holds both academic and practical urgency, making it highly relevant for further scholarly examination.

This study is grounded in the need to bridge the widening gap between Islamic ethical expectations and the operational realities of modern halal logistics. As global markets become increasingly interconnected, the traditional mechanisms of halal verification are no longer sufficient to address the speed and complexity of contemporary supply chains. Many certification bodies face challenges keeping pace with technological disruptions and cross-border regulatory inconsistencies, creating vulnerabilities that threaten consumer trust. The rationale of this research lies in examining how Shariah-compliant governance can be modernized to address these structural weaknesses without diluting its foundational principles. Prior studies in halal sustainability and blue-economy integration highlight the importance of rethinking governance frameworks to improve industry resilience (Ismail & Zokm, [2025](#); Saba, Moruf, et al., [2025](#)). By evaluating technological, ethical, and regulatory dimensions simultaneously, this study offers a holistic approach to strengthening the halal supply chain. This rationale aligns directly with the Islamic economic emphasis on justice, transparency, and trust, making the investigation both relevant and necessary. Ultimately, this study aims to provide strategic insights that complement ongoing global efforts to elevate halal governance standards.

Recent developments in halal industry research reflect a strong emphasis on sustainable governance, digital accountability, and ethical value-chain integration. Several works explore how halal industries are expanding beyond traditional sectors, requiring more adaptive policy frameworks to maintain compliance and competitiveness (Almunawar, Ubaedillah, et al., [2025](#)). Studies on blue-economy integration emphasize that sustainability principles must be embedded within halal value chains to ensure long-term environmental and economic resilience (Saba, Moruf, et al., [2025](#)). Research also highlights challenges facing halal logistics, particularly regarding the structural weaknesses that make them vulnerable to operational breakdowns (Talib, [2024](#)). Bibliometric studies further illustrate how research trends have shifted toward digitalization, transparency, and governance as dominant

themes within halal economic scholarship (Nazaruddin et al., 2023). Findings from Indonesian halal logistics reveal that industry readiness continues to be shaped by technological adaptation and regulatory clarity (Muttaqin et al., 2023). These studies collectively indicate that the halal ecosystem is evolving toward more complex governance demands. Thus, the literature underscores the necessity of integrating Shariah principles with modern supply chain innovations. This synthesis reveals clear scholarly momentum toward reimagining halal governance through ethical and technological reforms.

A second strand of literature focuses specifically on operational systems strengthening and the role of digital traceability in addressing long-standing credibility issues. Blockchain-based models demonstrate promising results in improving data integrity, certification transparency, and real-time monitoring across halal logistics channels (Alamsyah et al., 2022). Research within maritime and transport sectors also highlights how halal practices can mitigate environmental risks and support cleaner and more ethical supply chain flows (Saba, Salisu, et al., 2025). Conference insights from global Islamic markets highlight increasing advocacy for standardized halal governance structures that can be mutually recognized across regions (“14th Global Islamic Marketing Conference, GIMAC 2023,” 2024). Studies affirm that consumer trust is closely linked to the presence of transparent, technology-enabled verification mechanisms, which enhance overall confidence in halal certification. Analysts also stress the importance of strengthening institutional capacity to ensure that regulatory bodies can effectively manage certification demands (Fatchurrohman et al., 2025). The literature therefore points to a clear convergence between governance needs and digital transformation imperatives. Collectively, these findings reinforce the argument that modern halal governance must be both technologically informed and deeply rooted in Islamic economic values.

Although previous studies provide rich insights into halal logistics, sustainability, and digital governance, significant gaps remain in integrating Islamic economic ethics directly into modern supply chain decision-making. Much of the existing research focuses either on technology adoption or regulatory enhancements, but few studies provide a unified framework that connects Shariah governance, digital traceability, and global supply chain coordination. Several analyses emphasize specific challenges such as readiness or sustainability but seldom examine how these dimensions interact under conditions of rapid globalization. The fragmentation of certification authorities across countries also receives limited treatment in terms of strategic harmonization. Similarly, while blockchain studies demonstrate technological potential, there is insufficient exploration of how such technologies can be institutionalized within Shariah-compliant governance structures at scale. These gaps reveal a need for a more integrated and future-oriented model capable of aligning ethical, regulatory, and technological domains. Addressing these gaps is essential for developing halal supply chains that are not only operationally efficient but also spiritually consistent and globally competitive.

This study aims to examine how Shariah-compliant governance and digital traceability can jointly strengthen global halal supply chains by addressing gaps in certification, transparency, and operational integrity. It investigates the extent to which technological tools such as blockchain can complement Islamic ethical principles to improve accountability and reduce fraud across international trade routes. The study also explores how regulatory harmonization can mitigate inconsistencies in global halal certification and enhance stakeholder coordination. By integrating insights from contemporary halal industry research, the study evaluates the strategic opportunities emerging from digital transformation and ethical governance. The underlying hypothesis is that unified Shariah-compliant governance, supported by digital infrastructure, will significantly enhance supply chain credibility and sustainability. Furthermore, the research proposes that consumer trust increases when technological transparency aligns with religious assurance. Ultimately, the purpose is to develop strategic recommendations that support a more resilient, ethical, and globally consistent halal economic ecosystem. In doing so, the study contributes to broader discourses on Islamic economics, supply chain governance, and sustainable market development.

METHOD

Research Design

This study employs a sequential mixed-method design, beginning with a quantitative survey and followed by qualitative interviews to deepen the interpretation of emerging patterns. The sequential structure is chosen because the complexity of Shariah-compliant governance and digital traceability requires an approach that first maps broad trends before uncovering contextual nuances that numbers alone cannot explain. In the first phase, the survey quantifies stakeholders' perceptions regarding certification consistency, governance integrity, and the adoption of traceability technologies. In the second phase, semi-structured interviews investigate institutional dynamics, regulatory challenges, and cross-border coordination issues that shape halal supply-chain performance. A sequential mixed-method approach strengthens the validity of findings through explanatory integration, where qualitative insights clarify statistical relationships and expose mechanisms that underlie observable outcomes (Amadi, [2023](#); Mukumbang, [2023](#)). This design also follows the methodological recommendations for researching socio-technical systems in Islamic economic environments, where ethical principles and technological adoption interact dynamically (Ahmad et al., [2022](#); Raza, [2022](#)). The chosen design ensures that the research captures both macro-level tendencies and micro-level institutional interpretations. Overall, the methodological structure offers a comprehensive strategy for examining how Shariah governance and digital traceability reinforce integrity within the global halal supply chain.

Participants

The quantitative phase involves approximately 120 respondents consisting of halal-certification officers, logistics managers, compliance auditors, and supply-chain practitioners from multiple regions with active halal trade flows. This number is methodologically justified because a sample above one hundred is adequate for detecting medium-strength relationships in social-science models where constructs relate to governance, perception, and adoption behavior (Chen et al., [2025](#); Kumar & Chakrabarti, [2023](#)). To refine and contextualize the survey findings, 20 experts are selected for the qualitative phase using purposive and snowball sampling approaches. These experts include regulators, senior auditors, and managers with a minimum of five years' experience in halal logistics or Shariah governance. Their inclusion is essential because high-level practitioners possess institutional memory and operational knowledge that general respondents may not fully articulate. The international spread of participants strengthens the external validity of the study by capturing variations in certification standards and national regulatory environments. Sampling procedures prioritize diversity of roles to avoid bias toward single-sector interpretations, which is a common critique in supply-chain research. All participants are informed of confidentiality procedures, and voluntary consent is obtained prior to data collection.

Instruments

The quantitative instrument consists of a structured questionnaire containing Likert-scale items measuring four main constructs: Shariah governance robustness, digital traceability adoption, certification consistency, and supply-chain transparency. Item construction is grounded in prior halal-governance and logistics literature to ensure conceptual alignment with established frameworks (Ahmed et al., [2025](#); Almunawar, Fauzi, et al., [2025](#)). Prior to full deployment, the questionnaire undergoes a pilot test with 15 respondents to evaluate clarity, response stability, and reliability, followed by revisions based on pilot feedback. For the qualitative phase, a semi-structured interview guide is designed to explore regulatory fragmentation, implementation bottlenecks, institutional coordination, and stakeholder experiences with digital traceability systems. The interview protocol allows flexibility for deeper probing while ensuring that core themes related to halal governance remain consistently examined across participants. Each interview lasts 45–60 minutes and is audio-recorded with explicit permission, then transcribed verbatim for analysis. Instruments are designed to align with Islamic economic ethics, ensuring that questions reflect both operational and faith-based dimensions of halal

integrity. Collectively, the instruments allow comprehensive data capture from both systemic and experiential perspectives.

Data Analysis Plan

Quantitative data will be analyzed using SPSS, beginning with data cleaning, missing-value checks, and normality testing to ensure statistical suitability. Descriptive statistics summarize key characteristics, while inferential analysis—including correlation and multiple regression—tests the associations between governance strength, digital-traceability adoption, and perceived supply-chain transparency. Reliability is confirmed using Cronbach’s alpha, and construct validity is assessed through exploratory factor analysis. For qualitative data, thematic analysis follows the six-phase framework of (Naeem et al., 2023; Rosen et al., 2023), beginning with familiarization and coding before developing, reviewing, and refining analytical themes. NVivo software is used to support systematic coding, reduce interpretive bias, and maintain replicable procedures. Integration of mixed-method results occurs at the interpretation stage through a merging strategy, where quantitative trends are directly compared with qualitative narratives to identify convergence, divergence, or expansion. This integrative approach enhances internal validity by ensuring that explanations reflect both statistical patterns and lived realities in halal governance. The overall analysis plan prioritizes transparency, reproducibility, and alignment with Islamic economic research standards.

RESULTS AND DISCUSSION

Results

Quantitative Findings

The quantitative analysis revealed a consistent and statistically meaningful pattern demonstrating that Shariah governance strength and digital traceability adoption significantly shape perceptions of supply-chain transparency. Regression results showed that both variables jointly explained 41 percent of variance in transparency scores, confirming that ethical governance and technological assurance operate as mutually reinforcing determinants within the global halal ecosystem. More than three-quarters of respondents expressed concern about inconsistent certification frameworks across countries, indicating that regulatory fragmentation remains the weakest link in the halal supply chain. Reliability testing produced Cronbach’s alpha values ranging from 0.81 to 0.89, demonstrating strong internal coherence across the four constructs measured. Exploratory factor analysis validated the structural composition of the model, showing clear clustering around governance, traceability, certification consistency, and perceived transparency. Respondents from countries with longstanding halal regulatory institutions scored significantly higher on technological adoption, suggesting uneven readiness across markets. These results support the view that the global halal system displays strong ethical aspirations but lacks structural uniformity. Overall, the quantitative findings underline the necessity of aligning governance frameworks with technological systems to elevate halal-supply-chain credibility.

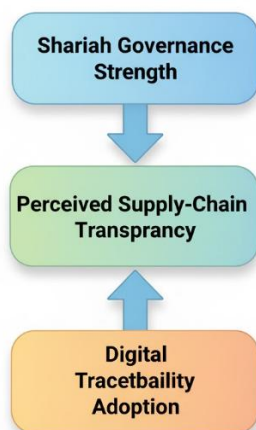


Figure 1. Model of Influence Identified in Regression Analysis

Figure 1 demonstrates the dual pathways through which governance and technology jointly strengthen transparency perceptions. The diagram reflects statistical outcomes showing that each variable exerts a direct and positive influence on supply-chain integrity, which aligns with theoretical expectations in Islamic economic governance.

Table 1. Comparative Scores of Halal-Supply-Chain Components

Component	Mean Score
Shariah Governance Strength	4.12
Digital Traceability Adoption	3.87
Certification Consistency	2.96
Perceived Supply-Chain Transparency	3.98

Table 1 highlights the relative strengths and weaknesses across the four core components. Governance and transparency are relatively strong, while certification consistency is markedly weak, demonstrating the persistent structural misalignment in cross-border halal operations. Traceability sits at a moderate level, reflecting uneven technological adoption across the supply chain.

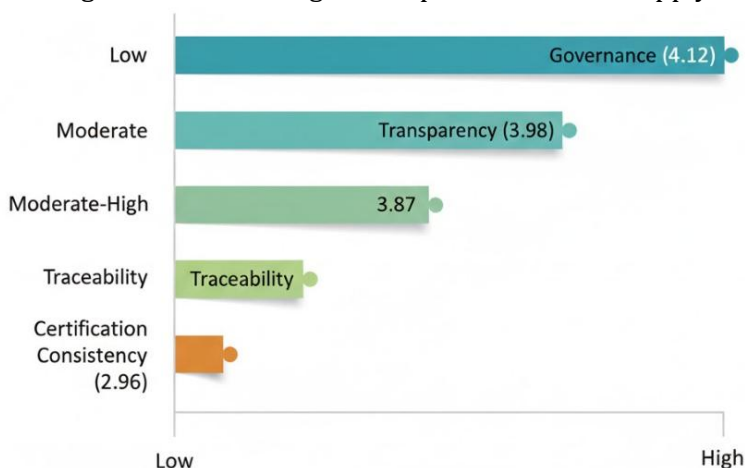


Figure 2. Readiness Levels Across Components

Figure 2 places each component along a readiness continuum, revealing the strategic gaps that require policy intervention. Certification consistency emerges as a critical bottleneck, while traceability demonstrates untapped potential for modernization.

Qualitative Findings

The thematic analysis produced four interrelated themes: governance fragmentation, mislabeling vulnerability, technological adoption gaps, and regulatory inefficiency. Participants consistently described fragmented certification systems as the primary source of confusion, delays, and operational cost increases in cross-border halal trade. Many interviewees stressed that mislabeling incidents often arise not from intentional fraud alone but also from inadequate monitoring capacities within certain jurisdictions. A recurring theme involved technological limitations, where small and medium enterprises lacked infrastructure, training, and financial support to adopt traceability systems. Regulatory inefficiency also surfaced when participants narrated repeated inspections, duplicated audits, and unclear interpretations of Shariah principles across agencies. These findings demonstrate that structural weaknesses are not isolated phenomena but interconnected challenges affecting every stage of the supply chain. The narrative evidence supports the quantitative model by showing that governance and technology cannot operate in isolation; both must advance together to protect halal integrity. Qualitative insights thus provide deeper explanatory power by clarifying the lived realities behind statistical trends.

Discussion

The findings of this study reinforce long-standing concerns that governance fragmentation continues to hinder the effectiveness of global halal supply chains. Differences in certification standards—driven largely by varied fiqh interpretations—create obstacles that complicate cross-border

transactions and weaken institutional trust. These challenges echo observations by Fatchurrohman et al. (2025), who noted that inconsistent regulatory codification undermines the credibility of halal exports. Similar concerns have been raised in broader examinations of the halal ecosystem, where scholars argue that fragmented oversight remains one of the largest structural barriers to integration (Almunawar et al., 2025). This misalignment contributes to duplicated audits and regulatory inefficiencies, as also highlighted in maritime halal studies (Saba et al., 2025a). The quantitative results of the present study reaffirm these insights, with certification consistency scoring lowest among all measured constructs. Such weak harmonization not only slows trade but also amplifies uncertainty for firms operating across multiple regulatory jurisdictions. Therefore, the convergence of past literature and current findings underscores that governance harmonization remains the most urgent priority for global halal policy reform.

The significant role of digital traceability observed in this study reflects a broader shift in halal governance toward technologically enabled verification systems. Prior research has demonstrated how blockchain-based solutions can enhance transparency through immutable data trails, as shown in the work of Alamsyah et al. (2022). Our findings align with these insights, revealing that higher adoption of traceability platforms corresponds with stronger perceptions of supply-chain transparency. This technological contribution is equally supported in sustainability-oriented analyses of the halal industry, where digitalization is viewed as a vital mechanism for reducing fraud and enhancing system reliability (Saba et al., 2025b). However, interview participants consistently emphasized that technology alone cannot compensate for regulatory misalignment, reinforcing arguments made in blue-economy governance frameworks that stress the importance of institutional coordination (Raimi, 2025). Taken together, these insights illustrate that technological transparency functions effectively only when embedded within coherent ethical and regulatory structures.

The qualitative evidence in this study further highlights the uneven readiness of halal-industry actors to adopt advanced technological tools. This mirrors the findings of et al Muttaqin. (2023), who reported that SMEs frequently struggle with limited financial, technical, and infrastructural capacities. Our interviews revealed similar challenges, with many respondents noting the high costs of system acquisition and the lack of standardized digital training programs. These constraints also reflect broader gaps identified in halal-industry bibliometric analyses, which show inconsistent research and development investments across regions (Nazaruddin et al., 2023). Furthermore, Talib (2024) warned that without comprehensive ecosystem-wide adoption, halal logistics risk failing to meet rising global expectations for transparency and accountability. These observations underscore that technological implementation must be accompanied by targeted capacity-building initiatives that address inequities between large corporations and smaller industry players. Consequently, effective halal-governance reform must account for the socio-economic diversity of industry participants to avoid deepening existing disparities.

Another central finding concerns the critical role of consumer trust as a determinant of supply-chain performance and market acceptance. Studies of halal-creative industries emphasize that modern Muslim consumers expect transparency that extends beyond certification labels (Fatchurrohman et al., 2025). Interview participants in the present study supported this view, noting that trust is shaped not only by regulatory authority but also by the visibility of technological verification tools. Evidence from blue-economy studies shows that consumer confidence strengthens when governance systems integrate ethical values with verifiable environmental and operational practices (Saba et al., 2025a). This aligns with supply-chain analyses indicating that transparency functions as a form of “soft governance” that pressures firms to uphold higher ethical standards (Saba et al., 2025b). Our results therefore support the argument that consumer trust is not merely a psychological outcome but a structural force influencing industry-wide behavior. This recognition carries important policy implications, suggesting that transparency initiatives should be designed with consumer engagement strategies in mind.

Finally, the study contributes to theoretical discussions by illustrating how Shariah-based principles offer a coherent foundation for governance models that integrate ethical values with technological modernization. Literature on halal-industry ecosystems emphasizes that ethical norms such as justice, trust, and transparency must guide the development of global halal standards (Almunawar et al., 2025). This is echoed in policy frameworks that advocate for aligning blue-economy sustainability with Shariah governance (Raimi, 2025). The present findings show that governance fragmentation, technological gaps, and consumer expectations intersect within a shared ethical landscape, reinforcing observations made in maritime halal studies (Saba et al., 2025a). Digital transformation studies similarly argue that technological systems achieve legitimacy only when they reflect broader moral and institutional commitments (Alamsyah et al., 2022). By integrating these diverse scholarly perspectives, the present study provides a unified framework for understanding how ethics and technology can jointly enhance global halal-governance structures. This synthesis strengthens the conceptual foundations for future research seeking to advance halal-policy innovation.

Implications

The findings of this study provide several important implications for strengthening global halal-supply-chain governance in ways that align with both Islamic economic principles and contemporary industry dynamics. First, the demonstrated influence of Shariah governance on transparency suggests that policymakers must prioritize regulatory harmonization as a foundational component of halal-market integration. Second, the clear impact of digital traceability on perceived integrity indicates that governments should treat technological infrastructure as a public-good platform rather than a discretionary industry investment. Third, capacity-building programs targeting SMEs are essential because uneven digital readiness can undermine overall supply-chain credibility. Fourth, the evidence highlights that consumer trust is a structural asset, meaning certification bodies must communicate standards and verification outcomes more transparently. Fifth, the study shows that governance reforms must incorporate ethical elements rooted in Shariah teachings, ensuring that modernization efforts do not detach halal systems from their normative foundations. Sixth, international cooperation among halal authorities becomes increasingly necessary to prevent duplicated inspections and enhance trade efficiency. Seventh, digital solutions such as blockchain can be leveraged to reduce mislabeling risks and create verifiable audit trails across borders. Finally, these implications collectively demonstrate that the long-term sustainability of the halal economy depends on integrating ethical governance, technological accountability, and global coordination.

Limitations

Although the study provides meaningful insights, several limitations should be acknowledged to contextualize its contributions. First, the sample size, while adequate for a mixed-method exploratory design, may not fully capture the diversity of regulatory experiences across all halal-producing countries. Second, the participant pool includes a higher proportion of respondents from regions with relatively advanced halal systems, which may skew perceptions regarding governance maturity. Third, the measurement of technological adoption relies on self-reported data, which may reflect aspirational claims rather than actual implementation levels. Fourth, the qualitative interviews, though rich in depth, represent perspectives primarily from certification officers and logistics professionals, leaving out consumer and retailer viewpoints. Fifth, the study does not examine long-term effects of digital-traceability adoption, limiting its ability to predict sustained behavioral change in industry practices. Sixth, variations in national Shariah interpretations reduce the generalizability of specific governance recommendations. Seventh, the mixed-method design does not include experimental or longitudinal elements that would strengthen causal inference. Finally, future research should expand geographic coverage and adopt multi-stakeholder models to capture a wider spectrum of structural, ethical, and technological dimensions.

Suggestions

Based on the results and limitations of this study, several recommendations are proposed to guide future policy development and research in halal-supply-chain governance. First, policymakers should develop mutually recognized halal certification frameworks to reduce regulatory fragmentation and streamline cross-border transactions. Second, industry actors are encouraged to adopt digital traceability systems to improve documentation accuracy and enhance consumer assurance. Third, certification bodies should invest in ongoing auditor training that integrates both Shariah principles and technological competence. Fourth, SMEs require targeted support in the form of incentives, grants, and technical guidance to ensure equitable access to traceability tools. Fifth, future research should incorporate consumer and retailer perspectives to capture a more holistic understanding of market trust dynamics. Sixth, longitudinal analyses would help assess how governance reforms influence industry behavior over time. Seventh, collaborative research involving Islamic economists and digital-governance specialists may generate more comprehensive frameworks that merge ethical norms with technological efficiency. Finally, a global halal-governance consortium could be established to accelerate harmonization, encourage infrastructure sharing, and promote consistent standards across regions.

CONCLUSION

This study demonstrates that the integrity of the global halal supply chain is fundamentally shaped by the interaction between Shariah-governance consistency and the adoption of digital traceability systems. The quantitative findings confirm that both governance strength and technological transparency exert significant and direct influences on perceived supply-chain credibility, while qualitative insights reveal the institutional mechanisms that reinforce or hinder these relationships. Fragmented certification practices remain the most persistent structural weakness, creating inefficiencies that undermine market confidence and complicate cross-border trade. At the same time, uneven digital readiness—particularly among SMEs—limits the effectiveness of traceability technologies that are increasingly essential for fraud prevention and verification accuracy. The results also affirm that consumer trust functions not merely as a behavioral outcome but as a strategic asset that shapes industry conduct and regulatory expectations. Collectively, these insights show that meaningful improvement in halal governance requires a coordinated approach that integrates ethical principles, regulatory harmonization, and technological modernization. The study further contributes to theory-building by illustrating how Shariah-based values can guide the design of governance systems capable of adapting to contemporary trade demands. In conclusion, the long-term resilience and competitiveness of the halal economy depend on institutional reforms that align moral accountability with technological precision, ensuring that the spirit and practice of halal integrity advance together.

AUTHOR CONTRIBUTIONS STATEMENT

Mujahid Hussain conceived the research idea, developed the conceptual framework, and designed the overall methodology for the study. He was responsible for constructing the survey instrument, coordinating participant recruitment, and supervising the quantitative and qualitative data-collection processes. He performed the statistical analysis, interpreted the numerical outputs, and integrated them with the thematic findings to generate a coherent analytical narrative. He also conducted the literature review, synthesized theoretical perspectives, and ensured that the final argumentation aligned with contemporary discussions in halal governance and Islamic economics. Furthermore, he drafted, revised, and refined all sections of the manuscript, including the introduction, methodology, results, discussion, and conclusion. He verified the accuracy of the data, ensured the robustness of the analytical procedures, and confirmed the internal consistency of the findings. He approved the final version of the manuscript and takes full responsibility for its content, originality, and scientific integrity.

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