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Integrating Halal Assurance and Quality Management: A Strategic Framework for Sustainable Growth in the Food Industry

Integrasi Jaminan Halal dan Manajemen Mutu: Kerangka Strategis untuk Pertumbuhan Berkelanjutan dalam Industri Pangan

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Abstract

The rising demand for halal-certified food products necessitates a robust assurance system that ensures compliance with religious standards while maintaining food quality and safety. Integrating the Halal Assurance System (HAS) with the Quality Management System (QMS) enhances efficiency but faces challenges such as certification discrepancies, operational constraints, and regulatory complexities. This study employs a systematic literature review using the PRISMA framework, analyzing journals from Scopus, ScienceDirect, and Web of Science. Findings indicate that differences in halal certification standards, including JAKIM (Malaysia), BPJPH (Indonesia), and GSO (Gulf), hinder HAS-QMS harmonization. Small and medium enterprises (SMEs) struggle with implementation due to resource limitations and insufficient training. Technologies like blockchain and the Internet of Things (IoT) improve supply chain transparency and audit efficiency. This study emphasizes integrating halal standards with risk-based quality management, regulatory harmonization, and technological advancements to enhance HAS-QMS adoption. The implications of the research can be utilized by regulators, industry, and academics in designing more effective policies and strategies to implement the integration of halal assurance systems and quality management systems.
Keywords: halal assurance system, halal certification, quality management system, risk management, system integration

Abstrak

Peningkatan permintaan produk pangan bersertifikat halal menuntut sistem jaminan yang memastikan kepatuhan terhadap standar keagamaan serta kualitas dan keamanan pangan. Integrasi Sistem Jaminan Halal (SJH) dengan Sistem Manajemen Mutu (SMM) meningkatkan efisiensi industri pangan tetapi menghadapi tantangan seperti perbedaan standar sertifikasi, kendala operasional, dan kompleksitas regulasi. Studi ini menggunakan metode systematic literature review *dengan kerangka PRISMA untuk menganalisis literatur dari jurnal bereputasi yang terindeks di* Scopus, ScienceDirect, *dan* Web of Science. *Hasil studi mengidentifikasi bahwa perbedaan standar halal di berbagai negara, seperti JAKIM (Malaysia), BPJPH (Indonesia), dan GSO (Gulf), menjadi hambatan utama dalam harmonisasi SJH-SMM. Usaha kecil dan menengah (UKM) mengalami kesulitan dalam implementasi akibat keterbatasan sumber daya dan pelatihan. Adopsi teknologi seperti blockchain dan Internet of Things (IoT) dapat meningkatkan transparansi rantai pasok halal serta efektivitas sistem audit. Studi ini menekankan pentingnya integrasi standar halal dengan manajemen mutu berbasis risiko, harmonisasi regulasi, dukungan teknologi, dan peningkatan kapasitas industri untuk mempercepat adopsi SJH-SMM. Implikasi hasil penelitian dapat dimanfaatkan oleh regulator, industri, dan akademisi dalam merancang kebijakan serta strategi yang lebih efektif untuk mengimplementasikan integrasi sistem jaminan halal dan sistem manajemen mutu.*
***Kata kunci**: integrasi sistem, manajemen risiko, sertifikasi halal, sistem jaminan halal, sistem manajemen mutu*

INTRODUCTION

The growing demand for halal-certified food necessitates robust assurance mechanisms ensuring compliance with religious and quality standards. The Halal Assurance System (HAS) provides a structured framework covering sourcing, processing, and distribution, while the Quality Management System (QMS) ensures food safety and regulatory compliance. Despite their shared objectives, integrating these systems is challenging due to regulatory inconsistencies, operational constraints, and market dynamics (Abdallah et al., 2021; Fajri, 2020).

A significant challenge in HAS implementation is the variability of halal certification standards across regions, complicating global market access. Differences among certifiers like Department of Islamic Development Malaysia which is called *Jabatan Kemajuan Islam Malaysia* (JAKIM), Halal Product Assurance Organizing Agency which is called *Badan Penyelenggara Jaminan Produk Halal* (BPJPH Indonesia), Gulf Standardization Organization (GSO), and Emirates Authority for Standardization and Metrology (ESMA) create regulatory fragmentation, increasing costs and complexity for multinational producers (Dewantara et al., 2018). Aligning HAS with QMS frameworks such as ISO 9001 and ISO 22000 is also difficult due to the lack of a unified integration model, leading to redundancies and inefficiencies (Puspaningtyas et al., 2023).

Operationally, small and medium enterprises (SMEs) struggle with limited resources, expertise, and training in HAS-QMS compliance (Dewantara et al., 2018; Othman et al., 2016). Halal auditing and certification require structured internal controls, but many businesses lack robust audit mechanisms, increasing non-compliance risks (Feri, 2020). Ensuring supply chain traceability is another challenge, given the rise in fraudulent halal claims and the need for stricter oversight (Demirci et al., 2016).

Market-related challenges further complicate HAS adoption. Consumer trust in halal certification varies by region, influencing demand and market penetration. Fraud and mislabeling incidents heighten skepticism, necessitating transparent verification mechanisms (Fuseini et al., 2017). Manufacturers may prioritize cost efficiency over strict halal compliance in price-sensitive markets, diluting quality assurance efforts (Salindal, 2019).

QMS ensures standardization and food safety through frameworks like International Organization for Standardization (ISO) 9001, Hazard Analysis and Critical Control Point (HACCP), and Good Manufacturing Practice (GMP), reducing production variability and supporting continuous improvement (Puspaningtyas & Sucipto, 2021). Integrating QMS with HAS strengthens halal compliance, enhances operational efficiency, and provides a competitive edge in the halal food industry (Fajri, 2020).

HAS-QMS integration also improves risk management by incorporating systematic hazard identification and preventive controls. QMS practices such as audits and corrective actions complement HAS requirements, ensuring halal-certified products meet global quality benchmarks (Fajri, 2020). This dual compliance model enhances consumer trust, mitigates non-compliance risks, and strengthens halal supply chain resilience (Puspaningtyas & Sucipto, 2021).

Technological advancements support HAS-QMS integration. Blockchain enhances halal supply chain traceability with immutable compliance records (Susanty et al., 2024). IoT sensors enable real-time monitoring of halal product integrity (Puspaningtyas & Sucipto, 2021), while AI automates compliance checks and optimizes auditing (Ahmad et al., 2024).

The push for a unified global halal certification standard is gaining momentum (Abdallah et al., 2021). Initiatives like HAS 23000 align halal certification with ISO 22000, reducing regulatory discrepancies and streamlining compliance (Puspaningtyas et al., 2023). Blockchain and data-driven quality management further enhance transparency, strengthening industry trust and consumer confidence (Glevitzky et al., 2025).

Despite its advantages, HAS-QMS integration remains underexplored in academic literature. Most studies focus on halal certification challenges or quality management principles, with limited research on their interdependence. More studies are needed to develop integration models, identify best practices, and assess practical implications in the food industry (Dewantara et al., 2018; Puspaningtyas & Sucipto, 2021). This review aimed to bridge this gap by analyzing existing research, identifying integration barriers, and proposing a harmonized framework. The findings will offer insights for policymakers, certification bodies, and industry practitioners, fostering a more coherent halal quality management

system. Achieving seamless HAS-QMS integration is crucial for ensuring the halal food industry's sustainability, credibility, and global competitiveness.

METHODS

This study adopted a Literature Review approach to synthesize research on integrating the Halal Assurance System (HAS) and Quality Management System (QMS) in the food industry. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework ensured transparency, rigor, and reproducibility in the selection and synthesis process. The methodology included four key components: literature search strategy, inclusion and exclusion criteria, screening and selection process, and quality assessment frameworks.

Literature Search Strategy

A comprehensive search of academic databases was conducted to identify peer-reviewed studies on HAS-QMS integration. Scopus, ScienceDirect, Web of Science, and Springer were selected due to their extensive coverage of scientific, technical, and managerial research, ensuring a broad representation of halal food quality management studies (Aboudahr & Govindarajoo, 2023; Kigozi & Yuen On, 2019). These databases have been widely utilized in previous research on quality management and food assurance systems.

The search strategy employed Boolean operators and predefined keywords to retrieve relevant studies. Keywords such as "Halal Assurance System," "Quality Management System," "Food Safety," "Halal Certification," "Compliance," "Risk Management," and "Consumer Confidence" were combined strategically to capture the core themes of HAS-QMS integration. The search was limited to studies published between 2015 and 2025 to ensure both foundational and recent research were included, providing an up-to-date perspective on the evolving discourse.

Search results were systematically documented, capturing details such as database name, keywords used, and the number of retrieved articles. Table 1 presents the databases searched and the initial number of articles identified.

Table 1. List of the Databases Searched

Database Name	Number of Papers Retrieved
Scopus	15
ScienceDirect	4
Web of Science	17
Springer	17

The next stage involved filtering these articles based on predefined inclusion and exclusion criteria to ensure only relevant and high-quality studies were included.

Inclusion and Exclusion Criteria

Predefined inclusion and exclusion criteria were applied to ensure methodological rigor. Only studies explicitly addressing HAS-QMS integration with empirical evidence from quantitative (e.g., surveys, statistical analysis) or qualitative (e.g., case studies, interviews) methods were considered. Peer-reviewed articles published in high-impact journals, assessed using SCImago Journal Ranking (SJR) and CiteScore, were prioritized.

Industry relevance was another key criterion, focusing on halal food production, processing, or certification studies. Research examining barriers, strategies, or performance impacts of HAS-QMS integration was given priority. Only studies published between 2015 and 2025 were included to maintain relevance, ensuring coverage of contemporary discussions.

Studies were excluded if they focused solely on HAS or QMS without discussing their integration. Non-peer-reviewed sources such as conference proceedings, grey literature, and opinion articles were omitted. Research outside the halal food industry, unclear methodologies, or insufficient empirical data was also excluded to ensure the validity and reliability of the findings.

Screening and Selection Process

The selection process followed four systematic stages based on the PRISMA framework. In the identification stage, articles were retrieved from multiple databases using the predefined search strategy, and duplicate records were removed. The screening stage involved reviewing titles and abstracts, excluding studies that did not explicitly address HAS-QMS integration.

Full-text articles were assessed for methodological rigor, empirical contributions, and relevance in the eligibility stage. Studies that lacked quality standards or substantive discussions on HAS-QMS integration were excluded. In the final inclusion stage, selected studies were systematically documented and categorized for synthesis.

The PRISMA flow diagram (Figure 1) illustrates the selection process to enhance transparency. It outlines the number of studies identified, screened, excluded, and included, ensuring clarity and reproducibility.

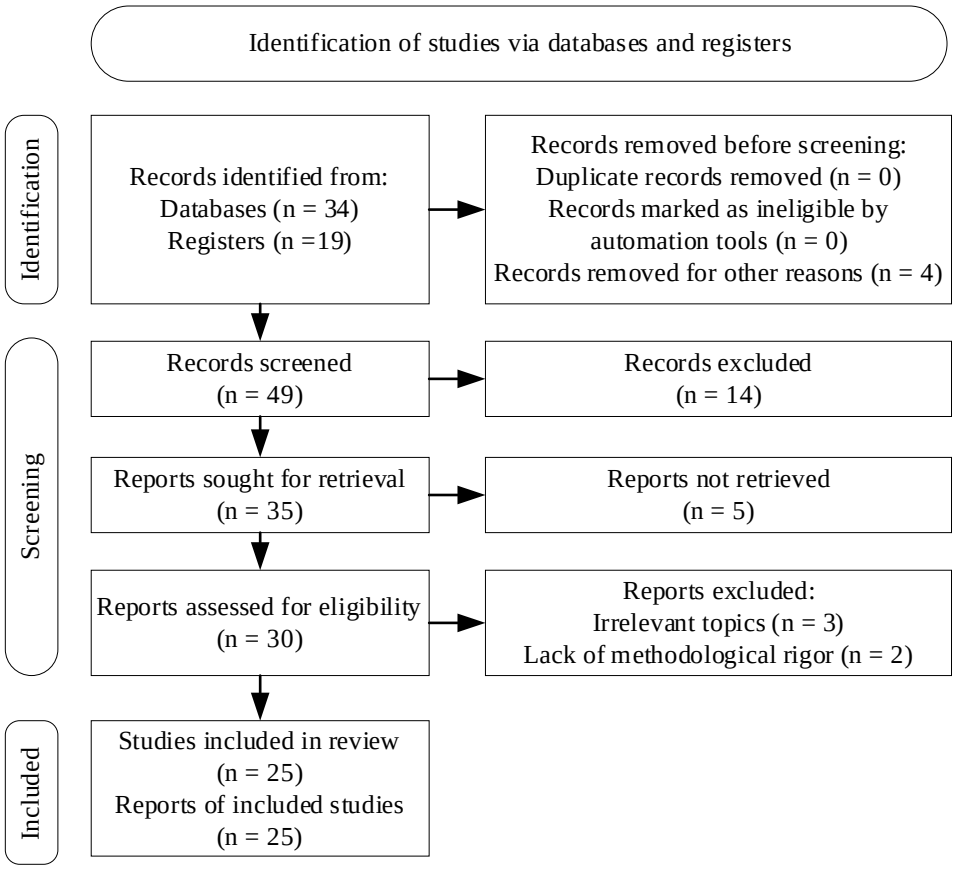

Figure 1. PRISMA flow diagram

Quality Assessment Frameworks

Multiple quality assessment frameworks were applied to ensure the inclusion of high-quality, methodologically sound studies. The PRISMA checklist enhanced transparency and reproducibility, ensuring systematic documentation of search strategies, inclusion criteria, data extraction, and synthesis methodologies (Moher et al., 2015). This approach ensured adherence to best practices in systematic reviews.

To assess the reliability of observational studies, the Newcastle-Ottawa Scale (NOS) evaluated selection bias, group comparability, and outcome assessments (Shea et al., 2017). For qualitative and mixed-methods studies, the Joanna Briggs Institute (JBI) Critical Appraisal Tools provided structured criteria for assessing research validity. These tools ensured a robust evaluation across diverse study designs.

Further validation considered SCImago Journal Ranking (SJR) and Impact Factor to prioritize studies from high-impact journals. The Cochrane Risk of Bias Tool identified potential biases in studies on HAS-QMS integration. Additionally, content analysis systematically coded and synthesized key themes, including integration frameworks, regulatory compliance, technological adoption, industry barriers, and performance outcomes (Islam, 2017).

Ensuring Transparency and Reproducibility

This study maintained the highest standards of systematic literature review by ensuring detailed documentation of the search strategy, inclusion criteria, and screening process. Every article selection and data extraction decision was systematically recorded to enhance transparency and enable replication. The PRISMA framework was strictly followed to uphold methodological integrity and comprehensive reporting.

Where possible, extracted data and analysis methodologies were made available for validation. This commitment to openness strengthens the credibility of findings, ensuring meaningful contributions to research on HAS-QMS integration in the halal food industry. This study provided a reliable and methodologically sound review by applying rigorous selection criteria and robust quality assessment frameworks.

THEORETICAL FRAMEWORK

The integration of HAS and QMS is guided by several theoretical models that help explain its implementation, challenges, and impact. Total Quality Management (TQM), Institutional Theory, Resource-Based View (RBV), and the HACCP framework provide key principles for structuring HAS-QMS in the halal food industry. Each theory offers unique insights into standardization, risk management, consumer trust, and operational efficiency.

Quality Management and Standardization Models

The implementation of HAS-QMS is guided by TQM and ISO 9001, emphasizing process standardization, continuous improvement, and customer satisfaction. TQM fosters a quality-driven culture that aligns with halal requirements, ensuring compliance with both regulatory and religious standards (Othman et al., 2016). Similarly, ISO 9001 provides a structured documentation and quality control framework, enhancing traceability and transparency in halal certification (Puspaningtyas & Sucipto, 2021).

Table 2. Key Theoretical Models for HAS-QMS Integration

Model Name	Description	Key Authors	Relevance to HAS-QMS
Total Quality Management (TQM)	Emphasizes continuous improvement, employee involvement, and customer satisfaction in quality management.	(Othman et al., 2016)	Enhances process standardization and quality assurance in halal certification.
ISO 9001	Establishes structured guidelines for process documentation and quality control.	(Puspaningtyas & Sucipto, 2021)	Ensures consistency in compliance with halal and food safety requirements.
Institutional Theory	Examines how regulatory frameworks and cultural influences shape organizational behavior.	(Abdallah et al., 2021)	Explains variations in halal certification policies across countries.
Resource-Based View (RBV)	Focuses on the strategic use of internal capabilities to gain competitive advantage.	(Jaaffar et al., 2024)	Highlights the role of HAS-QMS integration in building competitive differentiation.
HACCP	A preventive risk management system for identifying and controlling food safety hazards.	(Glevitzky et al., 2025)	Supports halal certification by minimizing contamination risks.

The HACCP framework further strengthens standardization by systematically identifying risks and implementing preventive measures. This is crucial in halal food production, where contamination from

non-halal sources must be strictly controlled (Glevitzky et al., 2025). By integrating HACCP with HAS-QMS, halal-certified products meet both religious criteria and international food safety standards such as ISO 22000 and Food Safety System Certification (FSSC) 22000. Table 2 summarizes the key theoretical models supporting HAS-QMS integration.

Institutional and Regulatory Perspectives

The adoption of HAS-QMS varies across countries due to differences in regulatory frameworks and institutional influences. Institutional Theory explains how government regulations and certification bodies shape organizational compliance with halal standards (Abdallah et al., 2021). It also highlights isomorphism, where organizations align their halal certification practices with regulatory and market expectations.

Regulatory inconsistencies challenge SMEs and multinational corporations across jurisdictions (Puspaningtyas et al., 2023). The lack of harmonization, such as differences between Malaysia's JAKIM and Indonesia's BPJPH standards, increases compliance burdens for businesses seeking international certification. Institutional pressures drive companies to develop robust compliance mechanisms to navigate these regulatory discrepancies.

Consumer trust and market legitimacy also play a key role in Institutional Theory. Halal certification enhances brand reputation and consumer confidence in product authenticity (Salindal, 2019). Regulatory institutions enforce compliance and reinforce public trust in halal products, as Figure 2 illustrates the interaction between HAS, QMS, and regulatory frameworks.

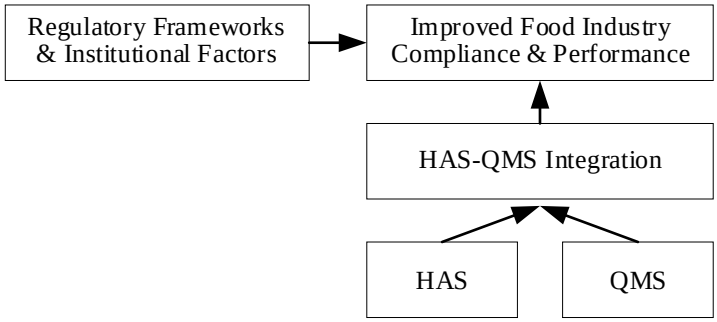

Figure 2. Conceptual framework for HAS-QMS integration

REVIEW OF FINDINGS

Regulatory Frameworks and Standardization

The integration of HAS-QMS is shaped by diverse regulatory frameworks established by global certification bodies. Countries and regions develop distinct halal certification standards influenced by religious, legal, and trade considerations. Key regulatory bodies include JAKIM (Malaysia), BPJPH (Indonesia), GSO (Gulf Cooperation Council), ESMA (United Arab Emirates), and various private certifiers in the European Union (EU), all of which impact certification processes, market access, and consumer confidence (Abdallah et al., 2021; Dewantara et al., 2018; Glevitzky et al., 2025).

Government-backed certification bodies vary in their approaches. JAKIM is globally recognized for its structured certification, integrating Islamic principles with ISO 22000 and HACCP. ESMA enforces strict halal regulations aligned with international food safety systems, ensuring compliance for manufacturers targeting the UAE. Indonesia's BPJPH operates a centralized government-led system, overseeing certification through an accredited Halal Inspection Agency which is called *Lembaga Pemeriksa Halal* (LPH) and the Indonesian Council of Ulama which is called *Majelis Ulama Indonesia* (MUI) for religious rulings, but faces challenges in enforcement consistency and international recognition. (Abdallah et al., 2021; Fajri, 2020).

The GSO aims to harmonize halal certification in the Gulf Cooperation Council (GCC), yet differences in enforcement create challenges for HAS-QMS integration. The EU lacks a centralized halal authority, resulting in fragmented certification standards among private certifiers. This lack of

standardization fosters consumer skepticism and complicates compliance for businesses exporting to EU markets (Glevitzky et al., 2025; Salindal, 2019).

Comparative Analysis of Halal Certification Standards

A comparative analysis of halal regulatory frameworks reveals distinct certification approaches and challenges. Table 3 summarizes key differences, highlighting each system's strengths and limitations in supporting HAS-QMS integration.

Malaysia's JAKIM and the UAE's ESMA implement structured, internationally aligned certification frameworks that ensure regulatory consistency. Indonesia's BPJPH operates a centralized government-led system but faces challenges in enforcement and international recognition, while private EU certifiers follow decentralized models, leading to inconsistencies and consumer trust concerns. The GCC's GSO aims to standardize halal regulations for trade facilitation, but variations in national enforcement limit its effectiveness (Abdallah et al., 2021; Dewantara et al., 2018; Salindal, 2019).

Table 3. Comparative Analysis of HAS and QMS Regulatory Standards

Regulatory Agency	Country	Key Requirements	Challenges
JAKIM	Malaysia	Compliance with ISO 22000, HACCP; strict supply chain audits	High certification costs; complex documentation requirements
BPJPH	Indonesia	Centralized halal certification system under government authority; mandatory halal certification for domestic and imported products; collaboration with LPH and MUI for fatwa issuance.	Lengthy certification process; high compliance costs for SMEs; transition issues from previous MUI-led certification system; need for stronger enforcement and international recognition.
GSO	GCC Countries	Harmonized halal standards for intra-regional trade	Differing national regulatory interpretations; enforcement inconsistencies
ESMA	UAE	Integration with international food safety regulations; rigorous compliance checks	High regulatory burden for exporters; extensive documentation
EU Halal Certifiers	European Union	Diverse certification bodies with no central authority	Lack of standardization; consumer distrust in halal authenticity

Regulatory Compliance and Market Access

Government halal certification standards significantly influence market access for halal-certified products. Malaysia's JAKIM is globally recognized, enabling seamless exports by aligning HAS-QMS with international safety and quality standards. Similarly, ESMA's strict certification in the UAE ensures compliance for manufacturers targeting the country's key role as a regional halal trade hub (Fajri, 2020; Glevitzky et al., 2025).

In contrast, the EU lacks a centralized halal certification system, relying on private organizations with varying standards. This fragmentation creates inconsistencies, making cross-border compliance difficult. Research by Siddiqui et al. (2024) highlights how regulatory discrepancies contribute to consumer skepticism about halal authenticity.

Indonesia's BPJPH certification model centralizes halal regulation under government oversight, enhancing accessibility and regulatory authority. However, inconsistencies in enforcement and coordination with LPH create challenges for uniform HAS-QMS integration, potentially complicating business compliance. These variations pose export barriers, as differing certification practices increase regulatory burdens. Meanwhile, the GCC's GSO aims to harmonize halal standards for regional trade, but enforcement remains decentralized, with individual states retaining control over certification (Puspaningtyas & Sucipto, 2021).

Implications for HAS-QMS Integration

The diversity of halal certification frameworks creates opportunities and challenges for global HAS-QMS integration. Government-led systems like JAKIM and ESMA ensure high compliance with international quality standards, while decentralized models in Indonesia and the EU hinder standardization. Aligning halal certification with global quality frameworks could enhance consumer trust and streamline market access (Ahmad et al., 2024).

Mutual recognition agreements (MRAs) between certifiers could reduce redundancy and improve regulatory efficiency. Blockchain-based halal certification offers the potential for enhanced traceability, fraud prevention, and more substantial consumer confidence. Digital verification systems within HAS-QMS could address inconsistencies and mislabeling (Puspaningtyas & Sucipto, 2021).

Government support, especially for SMEs, is crucial for improving compliance. Malaysia's training and financial assistance programs help SMEs integrate HAS-QMS, increasing adoption rates. Expanding such initiatives in Southeast Asia and the GCC could drive global standardization, benefiting producers and consumers (Dewantara et al., 2018).

Structured regulatory systems are key to effective HAS-QMS integration, ensuring compliance and facilitating trade. While challenges to global harmonization persist, targeted policies, technological advancements, and international collaboration could enhance regulatory consistency and consumer confidence in halal products.

Technology Adoption in HAS-QMS Integration

Integrating HAS with QMS increasingly leverages advanced technologies to enhance traceability, compliance, and efficiency. Blockchain, AI, ML, IoT, and big data analytics ensure halal integrity, prevent fraud, and optimize certification processes. These technologies enable real-time monitoring, automate compliance, and improve consumer trust through greater transparency. Figure 3 illustrates key technologies supporting HAS-QMS integration, highlighting their role in traceability, risk management, and regulatory adherence.

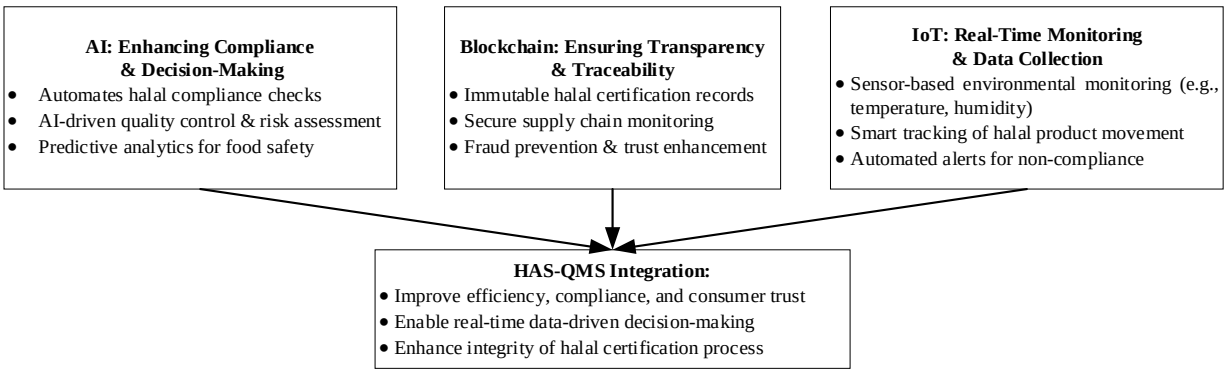

Figure 3. Emerging Technologies for HAS-QMS Integration

Artificial Intelligence and Machine Learning for Compliance Automation and Risk Prediction

AI and ML enhance HAS-QMS integration by automating compliance checks and enabling predictive risk management. These technologies analyze ingredient sourcing, manufacturing, and supply chains to ensure halal compliance. AI-powered image recognition further improves certification accuracy by verifying labels and reducing manual inspections (Othman et al., 2016). ML-driven predictive analytics helps identify and mitigate risks in halal food production. ML forecasts contamination risks, supply chain disruptions, and regulatory non-compliance by analyzing compliance data. Dewantara et al. (2018) highlight its effectiveness in proactively addressing halal quality management challenges.

Blockchain for Halal Traceability and Fraud Prevention

Blockchain technology is crucial in HAS-QMS integration, ensuring traceability and preventing fraudulent halal claims. As a decentralized ledger, it records every supply chain transaction, ensuring all stages of compliance. Susanty et al. (2024) highlight its effectiveness in maintaining product integrity,

particularly in the halal poultry industry. Beyond traceability, blockchain enhances food safety through real-time monitoring of environmental conditions like temperature and humidity. Vern et al. (2024) demonstrated its role in ensuring proper transportation and storage of halal products. Additionally, blockchain reduces mislabeling and fraudulent certification, addressing key challenges in the halal food industry (Puspaningtyas et al., 2023).

IoT and Big Data Analytics for Real-Time Monitoring and Consumer Transparency

Integrating IoT and big data analytics has transformed real-time monitoring and decision-making in HAS-QMS. IoT-enabled sensors, RFID tags, and cloud-based systems track halal products across the supply chain. Mariyam et al. (2022) highlight IoT's role in monitoring critical processing parameters to ensure compliance.

Big data analytics enhances decision-making by identifying inefficiencies and detecting anomalies in supply chains. Alimusa et al. (2023) emphasize its role in improving halal food quality by analyzing consumer behavior, market trends, and certification compliance. Additionally, IoT-based tracking allows consumers to verify halal status through QR codes before purchase.

Challenges and Regulatory Considerations in Technology Adoption

Technology adoption in HAS-QMS faces financial, technical, and regulatory challenges despite its benefits. Resistance from traditional halal authorities and regulatory inconsistencies further hinder adoption. Harsanto et al. (2024) emphasize the need for policy harmonization and industry collaboration to overcome these barriers.

The lack of standardized halal certification across regions is a major obstacle to blockchain adoption. Fragmented regulations create implementation inconsistencies, making a unified blockchain framework difficult. Additionally, SMEs struggle with the high costs of integrating blockchain, AI, and IoT, limiting accessibility.

Successful implementation requires collaboration between regulators, certification bodies, and industry stakeholders. Standardizing digital halal certification and providing financial support for SMEs can enhance adoption. These efforts will strengthen halal food production systems' integrity and efficiency.

Challenges in Implementation

Integrating HAS and QMS in the food industry, especially for SMEs, faces significant challenges. Financial constraints, regulatory complexities, knowledge gaps, and technological limitations hinder effective implementation. The complexity of certification and continuous compliance further exacerbate these difficulties. The following sections explore key barriers to HAS-QMS integration, supported by relevant literature.

Financial Constraints in HAS-QMS Implementation

Financial limitations are a significant barrier for SMEs when implementing HAS-QMS integration. Compliance with GMP, HACCP, and halal certification requires significant investment in certification fees, training, process modifications, and infrastructure upgrades. These costs place a heavy burden on SMEs with limited budgets.

Fajri (2020) notes that SMEs struggle to allocate resources due to the separate costs of each compliance standard. This often leads to delayed certification or partial compliance, reducing market competitiveness. The absence of financial incentives from governments or certification bodies further discourages adoption.

Another challenge is the cost-benefit consideration. SMEs may struggle to justify certification expenses without guaranteed access to international markets. Without financial support or subsidies, many remain unable to fully comply with HAS-QMS standards.

Knowledge and Expertise Gaps in HAS-QMS Compliance

A significant challenge for SMEs is the lack of technical knowledge in implementing HAS and QMS. Many, especially in developing countries, struggle with certification requirements and documentation. Without proper training and support, aligning production with certification criteria becomes difficult.

Dewantara et al. (2018) identify knowledge gaps as a key barrier to compliance. SMEs often fail to maintain proper documentation due to limited awareness of halal and quality management principles. The absence of structured training programs further complicates HAS-QMS implementation. Othman et al. (2016) highlight the lack of specialized personnel in SMEs as a critical issue. Unlike large enterprises with dedicated quality teams, SMEs rely on general workers with limited halal expertise. This condition increases non-compliance risks, affecting certification and market access.

Complexity of Certification Processes and Regulatory Variability

The complexity of halal certification is a significant challenge for SMEs. It requires strict documentation, product traceability, and compliance with local and international standards. For SMEs lacking structured management systems, these requirements can be overwhelming. Othman et al. (2016) argue that the administrative burden often exceeds SMEs' operational capacity. Maintaining records, conducting audits, and ensuring continuous compliance add to certification difficulties. Varying regulatory frameworks across countries further complicate the process for exporters. Puspaningtyas et al. (2023) highlight inconsistencies in halal standards. Multiple certifying bodies with differing requirements create confusion and inefficiencies. This regulatory complexity increases compliance costs and limits SMEs' access to global markets.

Technological Limitations in HAS-QMS Integration

Adopting digital technologies like blockchain, AI, and big data can enhance HAS-QMS by improving traceability and compliance. However, many SMEs lack the financial resources and technical expertise for implementation. This limits their ability to integrate automation and data-driven decision-making. Salim et al. (2018) highlight that SMEs struggle to adopt smart tracking and digital auditing tools, relying instead on manual processes. Larger enterprises invest in advanced systems, while SMEs face high costs for traceability and IoT-enabled monitoring. These financial constraints increase the risk of non-compliance. Another challenge is the absence of standardized digital infrastructure for halal certification. Unlike food safety management, halal certification still depends on paper-based documentation, making compliance inefficient. Without standardized digital solutions, SMEs face operational hurdles in HAS-QMS implementation.

Market Competition and Consumer Expectations

SMEs in the halal food industry struggle to compete with larger corporations that have more significant financial and technical resources for HAS-QMS implementation. Big firms invest in dedicated compliance teams, advanced technology, and continuous training, giving them a significant advantage. Resource constraints make it difficult for SMEs to keep up. Puspaningtyas & Sucipto (2021) highlight rising consumer demand for transparency, quality assurance, and traceability. SMEs often fail to meet these expectations, affecting brand credibility and market position. As a result, multinational halal-certified brands dominate, limiting SME market share. Larger companies also secure certifications from internationally recognized halal bodies, easing their entry into export markets. Due to differing standards, SMEs relying on local certifiers struggle to gain consumer trust abroad. This competitive gap discourages SMEs from investing in HAS-QMS, as certification benefits may not outweigh market access challenges.

Regulatory Support and Future Directions

Successful HAS-QMS implementation in SMEs requires stronger regulatory support and industry collaboration. Governments and halal certification bodies should simplify certification, reduce compliance costs, and provide financial assistance. Standardized digital halal certification platforms can further streamline processes and ease administrative burdens. Industry stakeholders must invest in capacity-building programs to enhance SME awareness and technical knowledge. Training centers and certification subsidies can encourage SMEs to adopt best practices in halal quality management. While HAS-QMS integration offers benefits like improved food safety, market access, and consumer trust, challenges like financial constraints, regulatory complexities, and technological limitations persist. Addressing these barriers requires collaboration among governments, certification bodies, and industry players to create a more inclusive and supportive ecosystem for SMEs in the halal food sector.

Impact on Business and Consumer Trust

Integrating HAS and QMS enhances business performance and consumer trust in halal-certified products. With rising global demand, ensuring product credibility and quality is essential for maintaining a competitive edge. A structured certification process helps businesses meet regulatory requirements while strengthening brand reliability and integrity.

HAS-QMS provides a systematic approach to managing halal certification while maintaining high product quality and safety. This dual assurance reduces uncertainties about compliance and authenticity, fostering consumer trust. Businesses implementing HAS-QMS benefit effectively from stronger brand loyalty, higher customer retention, and improved market competitiveness.

This section examines how HAS-QMS integration influences consumer trust and business sustainability. Key areas include transparency, quality assurance, compliance consistency, risk management, consumer engagement, competitive advantage, and long-term brand loyalty. These factors collectively enhance consumer confidence while improving operational efficiency and market positioning.

Enhanced Transparency and Consumer Confidence

Transparency is crucial for building consumer trust in halal-certified products and ensuring authenticity and adherence to Islamic dietary laws. HAS-QMS integration standardizes procedures, maintains accurate documentation, and provides clear certification information. These practices enhance credibility and reassure consumers of a product's halal integrity. Businesses that adopt HAS-QMS establish a transparent certification framework, strengthening consumer confidence and corporate reputation (Puspaningtyas et al., 2023). Access to detailed information on ingredients, sourcing, and production increases trust. Blockchain technology further improves transparency by enabling real-time traceability from farm to table. Transparent halal certification data reduces misinformation and fraudulent claims, which are key consumer concerns. Many actively seek assurance that products meet religious and quality standards. Companies that offer easy access to certification records, ingredient disclosures, and supply chain verification gain a competitive edge through deeper consumer trust and brand loyalty.

Strengthened Quality Assurance and Brand Reputation

Integrating QMS within the HAS framework ensures that halal-certified products meet stringent safety, hygiene, and quality standards. This alignment with global frameworks like ISO 9001, GMP, and HACCP positions businesses as halal integrity and product excellence leaders. A structured approach enhances compliance while strengthening brand credibility. Puspaningtyas & Sucipto (2021) argue that HAS-QMS integration boosts consumer trust by ensuring systematic quality control. Consumers view halal certification as a mark of religious adherence and superior product quality. Businesses that maintain high production, processing, and distribution standards have a strong reputation in Moslem and non-Moslem markets. Brand reputation is crucial in shaping consumer loyalty, especially in the halal food industry. Companies with well-documented HAS-QMS systems differentiate themselves from competitors with weaker quality assurance. Continuous improvements in certification and compliance efforts reinforce market presence and strengthen long-term customer relationships.

Consistency in Compliance and Trust Building

Consistency in halal certification and quality management is key to sustaining consumer trust. Consumers expect uniform standards across batches, facilities, and markets, and any deviation can lead to skepticism and reputational risks. Maintaining compliance ensures credibility and reliability. Glevitzky et al. (2025) emphasize that HAS-QMS integration provides standardized compliance mechanisms for consistent product quality and halal integrity. Regular audits, supplier assessments, and monitoring help businesses uphold uniform certification processes. This reassures consumers that halal status remains uncompromised throughout sourcing, handling, and manufacturing. Ensuring compliance consistency also improves international market access. Many countries enforce specific halal certification standards, and inconsistencies can limit export opportunities. By maintaining uniform certification practices, businesses enhance consumer confidence and strengthen their position in the global halal market.

Risk Management and Consumer Safety Assurance

Risk management is vital in HAS-QMS integration to prevent contamination, fraud, and non-compliance. Proactive mitigation strategies protect consumer health and reinforce trust, especially amid rising food fraud and mislabeling in the halal market. Ensuring product integrity strengthens brand credibility. Abdallah et al. (2021) highlights that integrating risk management into HAS-QMS allows businesses to identify hazards and implement preventive measures. Prioritizing risk assessment and food safety minimizes recalls and regulatory penalties. A strong risk management system demonstrates a company's commitment to halal integrity, further enhancing consumer confidence. Beyond food safety, risk management includes contingency planning for crises. Structured response protocols help businesses address consumer concerns and prevent reputational damage during recalls or certification disputes. A well-prepared company can effectively manage risks, maintaining trust in its halal products.

Consumer Engagement and Market Responsiveness

Active consumer engagement is essential for building trust in halal-certified products. Businesses integrating HAS-QMS can use certification as a tool for education, providing clear explanations of halal standards, quality control, and supply chain practices. This transparency strengthens consumer relationships and enhances brand loyalty. Salindal (2019) highlights the role of halal certification in shaping consumer perceptions of brand reliability. Companies that invest in education through social media, product labeling, and transparency gain greater consumer trust. Digital platforms that allow certification verification further boost confidence and encourage repeat purchases. Engaging with consumers helps businesses adapt to evolving market trends. As the halal market grows, consumer expectations increase. Companies that listen to feedback and align products with consumer needs maintain loyalty and drive long-term growth.

Competitive Advantage and Business Sustainability

HAS-QMS integration gives businesses a competitive edge by ensuring halal and international quality standards compliance. Companies implementing these systems can effectively differentiate themselves in the growing halal market. As demand increases, businesses prioritizing HAS-QMS can seize market opportunities and drive long-term profitability. Fajri (2020) notes that HAS-QMS integration enhances consumer trust, operational efficiency, and cost-effectiveness. Streamlining certification reduces redundancies, minimizes risks, and boosts productivity, making businesses more resilient. Strong HAS-QMS frameworks also attract investors, retail partners, and global distributors, expanding market reach. Long-term sustainability depends on ethical and responsible business practices. Consumers favor brands that uphold halal integrity, food safety, and sustainability. Companies integrating HAS-QMS can position themselves as leaders in ethical food production, ensuring continued growth and trust.

Reviewing findings across regulatory frameworks, technology adoption, implementation challenges, and business and consumer trust highlights strengths and weaknesses in existing studies on HAS-QMS integration. Table 4 provides a comparative analysis of methodologies, key contributions, and limitations of prior research. While these studies enhance understanding, they also reveal critical gaps that require further exploration.

Regulatory frameworks play a crucial role in HAS-QMS integration, yet fragmented halal certification standards remain a significant barrier. Malaysia's JAKIM and the UAE's ESMA align halal certification with international food safety standards like ISO 22000 and HACCP, ensuring compliance and market accessibility (Abdallah et al., 2021; Dewantara et al., 2018). However, inconsistencies across jurisdictions, particularly in Indonesia and the EU, create inefficiencies and redundant certification processes (Puspaningtyas et al., 2023). The lack of global harmonization limits scalability, with some studies advocating for mutual recognition agreements (MRAs) and blockchain-based certification to enhance traceability (Puspaningtyas & Sucipto, 2021). Despite these insights, most research focuses on compliance rather than actionable strategies for standardization.

Technology adoption is a key enabler of HAS-QMS integration, with blockchain, AI, ML, and IoT emerging as transformative solutions. Blockchain enhances halal traceability, ensuring immutable records across supply chains (Susanty et al., 2024; Vern et al., 2024). AI and ML automate compliance verification, improving auditing efficiency, while IoT enables real-time monitoring of storage and

transportation conditions (Mariyam et al., 2022). Despite these advancements, financial constraints, limited technical expertise, and regulatory inconsistencies hinder adoption, particularly among SMEs (Harsanto et al., 2024). High implementation costs and the absence of standardized digital infrastructure further complicate large-scale adoption, highlighting the need for comprehensive frameworks to address these challenges.

Table 4. Summary of Key Findings from Literature Review

Study	Methodology	Key Findings	Limitations
(Othman et al., 2016)	Quantitative Analysis	Examined the role of halal quality assurance in consumer confidence	Does not explore the integration of HAS and QMS in-depth
(Dewantara et al., 2018)	Survey & Compliance Assessment	Identified knowledge gaps in SMEs regarding halal and quality assurance systems	Findings are limited to a specific SME case study; generalizability is uncertain
(Salindal, 2019)	Market Performance Study	Examined the effect of halal certification on corporate innovation and market trust	Limited to firms with existing halal certification; does not account for non-certified firms
(Fajri, 2020)	Qualitative Case Study	Analyzed the financial burden of halal certification on SMEs and its impact on compliance	Focuses only on cost-related challenges; does not explore operational constraints
(Abdallah et al., 2021).	Comparative Analysis	Compared multiple halal standards and their application in slaughterhouses	Focuses on slaughterhouses only; does not consider broader halal food industry
(Puspaningtyas & Sucipto, 2021)	Review & Conceptual Framework	Explored the integration of HAS into IMS and its potential business impact	Limited to theoretical analysis; lacks real-world case studies
(Puspaningtyas et al., 2023).	Systematic Literature Review	Highlighted regulatory inconsistencies as a major barrier to HAS-QMS integration	Provides an overview but lacks empirical validation
(Glevitzky et al., 2025).	Quantitative Modeling	Developed an Integrated Risk Framework (IRF) for halal food risk assessment	Focused primarily on risk assessment without detailed discussion on implementation

SMEs face significant barriers in implementing HAS-QMS due to financial, regulatory, and operational constraints. High certification costs for GMP, HACCP, and halal compliance create financial burdens, making full implementation difficult (Fajri, 2020). Knowledge gaps in halal quality assurance further hinder compliance, as many SMEs lack the expertise required for documentation and standard adherence (Dewantara et al., 2018). Regulatory inconsistencies increase compliance costs and limit market expansion opportunities (Othman et al., 2016). While some studies propose government incentives and industry collaboration, empirical evidence of their effectiveness remains limited. The literature predominantly identifies challenges but lacks practical recommendations for improving adoption among SMEs.

HAS-QMS integration enhances business performance and consumer trust, with research linking halal certification to brand reputation, market competitiveness, and consumer confidence (Puspaningtyas & Sucipto, 2021). Blockchain-based traceability strengthens transparency, improving trust and corporate credibility (Puspaningtyas et al., 2023). Consistent compliance fosters brand loyalty and facilitates market access in Muslim-majority regions (Glevitzky et al., 2025). However, issues like halal fraud, misinformation, and inconsistent enforcement undermine consumer confidence (Abdallah et al., 2021). While some studies recommend educational initiatives and digital verification, evidence of their effectiveness is limited, and longitudinal research on the impact of certification on brand loyalty is lacking.

A comparative literature analysis highlights strengths and weaknesses in HAS-QMS research. Documenting of regulatory frameworks, technological innovations, and implementation challenges provides valuable insights. However, a major limitation is the lack of empirical research on practical implementation strategies, particularly for SMEs. Many studies remain theoretical, offering little

guidance for real-world applications. Research on consumer trust emphasizes the benefits of HAS-QMS integration but lacks evidence on how businesses can leverage certification to improve market performance. Future research should develop standardized implementation frameworks, assess the economic feasibility of technology adoption, and conduct longitudinal studies on HAS-QMS impacts.

The findings emphasize the need for a comprehensive approach to HAS-QMS integration, combining regulatory harmonization, technological advancements, and industry collaboration. While existing research highlights challenges and benefits, there is a pressing need for practical solutions. Policy recommendations, financial incentives, and digital infrastructure development should be prioritized, particularly for SMEs. Addressing these gaps will support a more effective and standardized halal certification system, strengthening industry trust and global competitiveness.

CONCLUSIONS

Integrating the Halal Assurance System (HAS) and Quality Management System (QMS) is essential for ensuring compliance with halal standards while maintaining high food safety and quality. This study highlights how HAS-QMS integration enhances regulatory adherence, strengthens consumer confidence, and improves operational efficiency. However, challenges remain in regulatory fragmentation, financial constraints, and technological limitations, particularly for SMEs. While countries like Malaysia and the UAE have well-established certification frameworks, inconsistencies across global markets create barriers to standardization. Emerging technologies such as blockchain, AI, and IoT offer potential solutions by improving traceability and compliance, but their adoption remains limited due to high costs and regulatory uncertainties.

Despite increasing research on HAS and QMS separately, empirical studies exploring their integration remain scarce. Most existing research focuses on individual certification challenges rather than holistic integration models. Additionally, there is limited insight into the long-term impact of HAS-QMS on business performance, consumer trust, and market competitiveness. Addressing these gaps is crucial for developing standardized frameworks that facilitate global adoption and reduce business compliance burdens. Understanding the economic feasibility of HAS-QMS, especially for SMEs, and exploring how integration influences consumer perceptions and purchasing decisions are also key areas for further investigation.

Future research should focus on developing a unified HAS-QMS standard that aligns halal certification with international food safety regulations while leveraging digital technologies to enhance efficiency and transparency. A stronger emphasis on regulatory harmonization, cost-effective compliance strategies, and consumer-driven insights will be instrumental in advancing the global halal food industry. By bridging existing research gaps, this study contributes to the ongoing discourse on HAS-QMS integration and provides a foundation for future innovations in halal certification and quality management.

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