INTERNATIONAL JOURNAL OF
NUSANTARA ISLAM
ISSN : 2355-651X

Halal Certification and Digitalized Halal Supply Chains: *A Maqāṣid al Sharīʿah* Perspective on Public Policy, Economic Growth, and Welfare

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Received: May 19, 2026; *Revised*: May 26, 2026, *Accepted*: July 12, 2026, *Published*: July 13, 2026

Abstract: The rapid expansion of the global halal market necessitates robust public policies to ensure product integrity and consumer trust. This study examines halal certification and the digitalization of the halal supply chain from a public policy perspective, employing a conceptual framework grounded in *Maqāṣid al Sharīʿah*. Using a qualitative descriptive approach with thematic content analysis, the research explores the integration of digital technologies—such as blockchain and artificial intelligence (AI)—within the Sharia Value Chain. The findings indicate that digitalization initiatives, particularly through systems such as SIHALAL, significantly enhance transparency, operational efficiency, and the inclusivity of micro, small, and medium enterprises (MSMEs) by addressing technological disparities through regulatory intervention. Furthermore, embedding *Maqāṣid al Sharīʿah* principles—specifically *ḥifẓ al dīn, ḥifẓ al nafs*, and *ḥifẓ al māl*—into digital supply chain governance functions as a strategic catalyst for sustainable economic growth and social welfare. The study concludes that adaptive public policies emphasizing digital transformation and sharīʿah-by-design principles are essential to mitigating information asymmetry and strengthening national economic resilience.

Keywords: economic welfare; digitalization; halal certification; *Maqāṣid al Sharīʿah*; public policy.

Introduction

The global demand for halal food products has experienced rapid growth as consumers increasingly prioritize purity and cleanliness in their consumption practices. This pattern of consumption is no longer confined to Muslim populations; it has expanded significantly among non-Muslim consumers due to the stringent standards of hygiene, safety, and quality associated with halal products (Alourani & Khan, 2024; Rohmah et al., 2019). Recent projections estimate that global consumer expenditure on halal products will reach approximately USD 2.8 trillion by 2025. This expansion spans multiple sectors, including food, pharmaceuticals, cosmetics, and lifestyle services (Saifuddin & Setiawan, 2025). Consequently, safeguarding the integrity of halal products has become a critical prerequisite for sustaining consumer trust and ensuring global market stability (Haris & Tantimin, 2022).

Conceptually, halal extends beyond the mere permissibility of ingredients; it requires comprehensive compliance with Islamic principles throughout the entire product life cycle (Khan, 2025; Riaz & Chaudry, 2018). The halal status of a product is determined not only by its source but also by processes of raw material procurement, production, storage, transportation, and distribution (Al-Teinaz et al., 2020). Any instance of cross-contamination with non-halal materials during logistics and handling may invalidate the product's halal status (Kurniawati et al., 2024). Therefore, the standardization and enforcement of Islamic principles across the supply chain are essential to prevent systemic integrity failures (Alourani & Khan, 2024). This multidimensional requirement renders halal supply chain management substantially more complex than conventional supply chains (Aini et al., 2023).

Despite the industry's growth, persistent challenges remain regarding the authenticity and traceability of halal certification (Tan et al., 2022). The absence of a universally harmonized certification standard, coupled with regional variations among Islamic legal schools, adds structural complexity to the halal ecosystem (Abidin & Perdana, 2020). Consumers frequently express skepticism toward halal labels due to cases of fraud and non-compliance with established standards. Such information asymmetry and erosion of trust can significantly undermine the global competitiveness of halal-producing countries (Miftah et al., 2025). Addressing these challenges requires a robust governance system capable of ensuring end-to-end compliance with Islamic dietary guidelines across the entire supply chain (Dashti et al., 2024).

Digitalization has emerged as a transformative response to these structural challenges by enabling decentralized, transparent, and immutable records of supply chain information (Ahamed et al., 2023). Technologies such as blockchain and artificial intelligence (AI) are increasingly integrated to enhance traceability and real-time monitoring within halal supply chains (Alamsyah, 2020). Blockchain technology offers tamper-resistant verification of product provenance, while AI facilitates pattern recognition, risk detection, and automated compliance monitoring (Julian et al., 2025). Through the implementation of these technologies, stakeholders can establish a renewed foundation of trust between producers, regulators, and consumers (Alourani & Khan, 2024). This digital transformation represents not merely a technical upgrade, but a strategic imperative within the contemporary post-pandemic economic landscape (Saifuddin & Setiawan, 2025).

Public policy plays a central role in accelerating digital transformation within the halal industry, particularly in emerging economies (Karyani et al., 2024). In Indonesia, the Halal Product Assurance Agency (BPJPH) has institutionalized digitalization through the SIHALAL system to streamline halal certification services (BPJPH, 2025). This initiative reflects a broader modernization agenda aimed at enhancing efficiency, transparency, and accountability in halal governance (Dewi & Hakiki, 2023). Regulatory instruments such as Law No. 33 of 2014 mandate halal certification, thereby driving structural transformation across multiple economic sectors (Halim et al., 2022). These state-led interventions are designed to provide legal certainty while strengthening the halal sector's contribution to national economic development (Madjid & Hasan, 2022).

Nevertheless, the adoption of advanced digital technologies has generated disparities between large corporations and Micro, Small, and Medium Enterprises (MSMEs) (Syakirunn'iam et al., 2025). Large firms typically possess the financial and technological capacity to implement integrated digital supply chain systems, whereas MSMEs often encounter constraints such as limited digital literacy and high implementation costs (Saima et al., 2024). To mitigate this imbalance, inclusive public policy initiatives—such as the Sehati program, which provides subsidized halal certification—have been introduced to facilitate MSME participation (Anwar & Bin Sarip, 2024). Without such interventions, technological inequality risks fragmenting the halal supply chain and undermining its end-to-end integrity (Warto & Rachman, 2025). Accordingly, public policy must function as a catalyst for inclusive innovation diffusion to ensure equitable participation at the grassroots level (Saifuddin & Setiawan, 2025).

The integration of *Maqāṣid al Sharīʿah* offers a comprehensive ethical framework for guiding digital transformation within the halal economy (Melzatia et al., 2025). The objectives of *Maqāṣid al Sharīʿah*—particularly the preservation of religion *(ḥifẓ al dīn)*, life *(ḥifẓ al nafs)*, and wealth (*ḥifẓ al māl*)—ensure that technological advancement serves human well-being rather than purely economic interests (Sulistiani, 2019). Digitalization within the Sharia Value Chain (SVC) embeds values of honesty, accountability, and justice into operational processes (Minu et al., 2025). By aligning technological innovation with these moral and spiritual foundations, the halal industry can pursue sustainable development that benefits society as a whole (Zulkifli et al., 2023). This paradigm elevates halal from a religious label to a universal standard encompassing safety, ethics, and social responsibility (Ahida et al., 2025).

Economic growth and social welfare represent the ultimate outcomes of a well-governed digital halal ecosystem (Khairunnisa et al., 2025). The halal sector contributes substantially to national gross domestic product (GDP), and technology-driven optimization can further enhance export competitiveness (Miftah et al., 2025). Digitalized halal supply chains reduce transaction costs, improve efficiency, and enable firms to access premium global niche markets (Zainorrahman & Reza Zulfikri, 2023). Moreover, enhanced transparency strengthens social resilience by protecting consumers from fraud and public health risks (Razak et al., 2026). This holistic framework promotes equitable distribution of economic benefits and fosters long-term national resilience across multiple dimensions of societal well-being (Melzatia et al., 2025). Strengthening halal supply chains through digitalization thus directly supports the realization of maṣlaḥah for the global community (Meldona & Sulis Rochayatun, 2024).

Despite these acknowledged benefits, a significant research gap persists regarding integrated analytical frameworks that connect digital innovation, public policy, and *Maqāṣid al Sharīʿah*. Existing studies predominantly focus on sector-specific analyses or technical aspects of certification in isolation (Prayuda et al., 2023). There remains a lack of conceptual models that operationalize Maqāṣid principles as evaluative tools for assessing the impact of digital public policies on economic growth and social welfare (Khairunnisa et al., 2025) Accordingly, this study is guided by three central research questions: (1) how digitalization of halal supply chains can be guided by *Maqāṣid al Sharīʿah* to promote justice and sustainability; (2) to what extent digital public policies for halal certification influence MSME competitiveness and inclusivity in global markets; and (3) how the implementation of blockchain and artificial intelligence within the Sharia Value Chain affects social welfare and national economic resilience.

This paper is structured as follows. Following the introduction, the literature review examines prior studies on digital traceability and Islamic economic ethics (Bux et al., n.d.). The subsequent section outlines the conceptual methodology, emphasizing the integration of public policy perspectives with *Maqāṣid*-based evaluative frameworks (Parmujianto, 2025). The results and discussion sections synthesize key findings to demonstrate the strategic role of digitalization in fostering economic growth and welfare. Finally, the conclusion presents policy recommendations and future research directions to support aspirations toward becoming a global halal hub, underscoring the indispensability of digital ethics in the contemporary halal industry (Alourani & Khan, 2024).

Method

This study employs a descriptive qualitative approach to develop an in-depth understanding, conceptual interpretation, and strategic analysis of digitalization phenomena within the halal industry (Saifuddin & Setiawan, 2025). Qualitative research is selected for its capacity to explore complex constructs, map interrelationships among ideas, and interpret secondary data within their socio-institutional context (Prayuda et al., 2023). The methodological orientation is grounded in a conceptual–normative analysis, positioning *Maqāṣid al Sharīʿah* as the principal evaluative framework for assessing digital public policies and governance mechanisms (Parmujianto, 2025). By emphasizing ethical values, institutional arrangements, and regulatory processes rather than purely quantitative measurement, this study offers a holistic perspective on how digital technology functions as an enabler of moral accountability and public welfare (Melzatia et al., 2025). Such a design is particularly suitable for examining human-centered transformations within the post-pandemic economic landscape (Creswell, 2015).

The data sources utilized in this research are entirely secondary, consisting of authoritative textual materials derived from validated and reputable publications (Mulyadi et al., 2025). The corpus of analysis includes peer-reviewed scientific articles published in high-quality international and national academic outlets, official government regulations, policy documents, and scholarly books relevant to halal governance and Islamic economics. Primary regulatory texts include Law No. 33 of 2014 on Halal Product Assurance and official technical reports issued by the Halal Product Assurance Agency (BPJPH) (Minu et al., 2025). This selection of sources ensures that the conceptual framework is firmly grounded in both classical Islamic normative theory and contemporary policy and economic realities. Selected non-academic policy reports and institutional documents are also incorporated to provide contextual insight into multi-sector diversification within the halal industry (Rauf & Haq, 2024).

Data collection is conducted through a systematic literature review (SLR) combined with purposive sampling of relevant scholarly and policy-oriented works (Qadir & others, 2025). The selection criteria focus on publications released between 2019 and 2025 to capture recent developments and structural transformations influenced by digitalization within the halal ecosystem.

Following an initial screening of titles and abstracts, selected documents are subjected to full-text review and organized into a structured corpus for in-depth reading, comparison, and thematic categorization. This systematic procedure enhances analytical rigor and supports the credibility and originality of the synthesized findings (Snyder, 2015).

Data analysis employs thematic content analysis, conducted through sequential stages of open, axial, and selective coding (Saifuddin & Setiawan, 2025). During the open coding phase, key concepts—such as blockchain-enabled transparency, inclusive innovation, regulatory governance, and information asymmetry—are identified and labeled (Nurmasari et al., 2020). Axial coding then organizes these concepts into higher-order thematic categories, particularly focusing on digital transparency mechanisms and the Sharia Value Chain. In the final selective coding stage, these themes are integrated to construct the core analytical narrative and develop an integrated conceptual model linking digitalization, public policy, and *Maqāṣid al Sharīʿah*. To strengthen analytical coherence, pattern-matching techniques are applied by comparing empirically observed patterns in the literature with theoretically derived expectations from the Resource-Based View (RBV) framework.

The final methodological stage involves drawing conclusions through systematic synthesis of the analyzed data to address the study's research questions. The synthesized findings elucidate the interconnections between digital capability, *maqāṣid*-oriented outcomes, and national economic resilience. Source triangulation is employed to enhance validity by comparing perspectives across different authors, disciplines, institutional contexts, and publication periods (Denzin, 2012). This integrative synthesis enables the formulation of substantive policy recommendations aimed at reducing technological disparities, strengthening halal governance, and enhancing national economic welfare. Ultimately, the methodological process ensures that the study's conclusions are both theoretically robust and practically relevant, particularly for policymakers seeking to advance inclusive and ethically grounded digital transformation within the Islamic economy.

Results and Discussion

The findings of this study indicate that the digitalization of Indonesia's halal industry constitutes a profound structural transformation shaped by the interaction between regulatory mandates and increasing global market pressures. This transformation is characterized by the integration of advanced digital technologies—particularly blockchain and artificial intelligence (AI)—within a governance framework informed by Islamic ethical principles (*Maqāṣid al Sharīʿah*) to enhance transparency and trust. The thematic analysis reveals that digital technology functions not merely as an operational tool, but as a foundational enabler for realizing the higher objectives of the Sharia, especially in safeguarding supply chain integrity and preventing information asymmetry. In this context, the alignment between public policy instruments and digital innovation emerges as a strategic mechanism for strengthening national economic resilience and advancing social welfare.

The results further demonstrate that effective digitalization in the halal sector transcends the notion of technological modernization and represents a form of inclusive innovation aimed at bridging disparities between large enterprises and Micro, Small, and Medium Enterprises (MSMEs) (Syakirunn'iam et al., 2025). The implementation of integrated digital systems such as SIHALAL illustrates how state-led digital governance can institutionalize transparency, accountability, and real-time traceability across the halal value chain (BPJPH, 2024). From a *Maqāṣid al Sharīʿah* perspective, such systems contribute directly to the protection of religion *(ḥifẓ al dīn)* by ensuring halal integrity, the protection of life *(ḥifẓ al nafs)* through enhanced food safety, and the protection of wealth (*ḥifẓ al māl*) by reducing transaction costs and market inefficiencies. Moreover, the analysis suggests that when digital transformation is guided by ethical and normative values rather than solely efficiency-oriented objectives, it generates more sustainable and equitable economic outcomes (Khairunnisa et al., 2025). Public policy interventions that promote inclusive access to digital certification and traceability systems function as redistributive mechanisms, enabling MSMEs to participate meaningfully in global halal markets. This inclusivity not only enhances sectoral competitiveness but also reinforces social cohesion by preventing the marginalization of small-scale producers within increasingly complex digital supply networks.

At the macroeconomic level, the findings indicate that a well-governed digital halal ecosystem contributes positively to national economic resilience by strengthening consumer confidence, expanding export potential, and mitigating systemic risks associated with fraud and non-compliance (Putri et al., 2024). The integration of blockchain and AI within the Sharia Value Chain supports a governance model in which transparency and accountability become structural features rather than reactive measures. In this sense, digitalization serves as both an economic and ethical infrastructure, aligning technological progress with the realization of maṣlaḥah (public interest) and long-term societal well-being. Overall, the results affirm that the digital transformation of the halal industry—when anchored in *Maqāṣid al Sharīʿah* and reinforced by inclusive public policy—functions as a multidimensional catalyst for ethical governance, economic growth, and social welfare. The discussion underscores that technology, policy, and Islamic ethical objectives must be understood as an integrated system rather than isolated components, particularly in the pursuit of sustainable national development within the halal economy.

Guiding Digital Transformation through *Maqāṣid al Sharīʿah*

Maqāṣid al Sharīʿah constitutes the primary normative framework for ensuring that technological innovation within the halal industry remains aligned with human-centered and ethically grounded values, a principle of paramount importance for Indonesia's identity as a Muslim-majority nation (Melzatia et al., 2025). By prioritizing the preservation of religion *(ḥifẓ al dīn)*, life *(ḥifẓ al nafs)*, wealth (*ḥifẓ al māl*), intellect *(ḥifẓ al ʿaql)*, and progeny *(ḥifẓ al nasl)*, digital transformation transcends the narrow logic of economic efficiency and profit maximization. This ethical orientation repositions halal from a purely ritual obligation into a universal quality standard that encompasses safety, wholesomeness, justice, and social responsibility, elevating the strategic value of Indonesia's halal exports. Within this paradigm, digital technologies particularly blockchain function as a moral infrastructure by providing immutable records that deter fraudulent labeling, manipulation, and cross-contamination across Indonesian supply chains (Alourani & Khan, 2024). Consequently, embedding *Sharia* objectives within Indonesia's digital governance frameworks ensures that the evolving digital economy advances justice *(ʿadl)* and long-term communal protection (maṣlaḥah).

From the perspective of *ḥifẓ al nafs*, digital traceability mechanisms play a critical role in safeguarding Indonesian public health by ensuring that halal products meet stringent standards of safety and hygiene (Parmujianto, 2025). While earlier studies emphasized blockchain primarily as a tool for enhancing certification integrity, this study extends the argument by conceptualizing digital technology as a concrete realization of the principle of ṭayyiban that which is wholesome, safe, and beneficial for human consumption—within Indonesia's consumer protection framework. Artificial intelligence (AI)–driven monitoring systems facilitate the early detection of harmful patterns in raw material sourcing and production processes, particularly in sensitive sectors such as pharmaceuticals and biological goods produced or imported into Indonesia. Through automation and continuous surveillance, Indonesian regulators can reduce both human error and deliberate malpractice throughout the product life cycle (Julian et al., 2025). In this sense, digital oversight reinforces the Indonesian state's ethical mandate to protect the lives of its citizens through technologically enhanced governance (Indrasaputra & Siahaan, 2022).

The preservation of wealth (*ḥifẓ al māl*) is operationalized through digital mechanisms that reduce information asymmetry and prevent exploitative market practices in Indonesia. Digitalization facilitates the equitable distribution of verified information, enabling Indonesian consumers and stakeholders to make informed decisions based on transparent and traceable data. Departing from earlier studies that narrowly equated digital adoption with profit enhancement, this research emphasizes that transparency-oriented technologies curb unjust wealth accumulation by unethical actors in the Indonesian market (Razak et al., 2026). Blockchain's decentralized ledger records transactions impartially, ensuring fair recognition and value distribution among Indonesian farmers, suppliers, and producer. Such systems cultivate a financial ecosystem in which wealth circulates on the basis of productivity, trust, and ethical compliance rather than manipulation and rent-seeking behavior, supporting Indonesia's goal of inclusive economic growth.

The objective of *ḥifẓ al dīn* is upheld through technological mechanisms that secure the authenticity of religious observance in consumption practices for Indonesian Muslims (Sulistiani, 2019). Indonesia's digital certification systems ensure that the halal status of a product remains consistent and verifiable throughout its journey from upstream production to final consumption (Warto & Rachman, 2025). This approach directly addresses the variability and fragmentation of certification standards identified in previous studies (Abidin et al., 2020) by offering granular visibility into raw material origins and processing stages within Indonesian supply chains. When digital verification is integrated with faith-based supervision, it establishes a resilient system capable of resisting spiritual manipulation and symbolic misuse of religious labels in Indonesia. Such a system not only safeguards religious integrity for Indonesian Muslim consumers but also promotes social harmony by providing universally safe and ethically produced goods for broader society (Rohmah et al., 2019).

The relevance of *ḥifẓ* al-aql emerges through the role of digital platforms as instruments of education and rational decision-making within Indonesia's halal economy. Digital systems enhance the literacy of both Indonesian producers and consumers by translating complex certification requirements into accessible and comprehensible informatio. By reducing opacity and misinformation, digitalization mitigates irrational risks commonly associated with speculative and opaque markets in Indonesia (Okumuş, 2024). This finding aligns with prior research identifying literacy and knowledge access as critical determinants of financial inclusion and economic resilience in the Indonesian context. Protecting the intellect through transparent information systems ensures that Indonesian stakeholders are not misled by false claims or obscured supply chain practices (Saifuddin & Setiawan, 2025).

Intergenerational justice, as articulated through ḥifẓ al-nasl, is realized by fostering sustainable halal supply chains that avoid environmental exploitation and resource depletion, a growing priority within Indonesia's policy discourse. This study observes that the emergence of trends such as "Green Beauty" and ethical cosmetics reflects how digital traceability supports long-term ecological balance and aligns with Indonesia's sustainable development goals. By enabling the monitoring of carbon footprints, ethical sourcing, and environmental impact, digital technologies ensure that present consumption patterns do not compromise the well-being of future generations in Indonesia. This stands in contrast to conventional growth models that prioritize short-term expansion at the expense of environmental stewardship. *Maqāṣid*-oriented digitalization thus cultivates an environmentally resilient ecosystem conducive to the healthy growth of future progeny in Indonesia.

The Theory of Tauhid String Relation (TSR) further reinforces this framework by asserting that economic activities are inseparable from divine principles and metaphysical accountability, a perspective deeply resonant within Indonesian Islamic scholarship. TSR posits that the ultimate objective of economic transactions is the realization of public interest *(maṣlaḥah),* rather than individual gain alone (Nugroho et al., 2020). Within this paradigm, digitalization is not deployed merely as a profit-maximizing instrument but as a means of advancing collective well-being within the ummah and the Indonesian nation (Hadi & Basit, 2021). This perspective signifies a strategic shift from viewing blockchain as a purely technical tool to understanding it as a spiritual and moral anchor within Indonesia's economic governance. Ultimately, such integration ensures that the digital halal industry contributes simultaneously to material prosperity and spiritual fulfillment in Indonesia.

Empirical and conceptual studies indicate that countries integrating *Maqāṣid*-based principles into their digital and economic governance frameworks exhibit stronger resilience to external shocks. The implementation of the Sharia Value Chain in Indonesia provides evidence of a viable alternative to exploitative conventional systems. The Indonesian context demonstrates how digital audits and traceability mechanisms can sustain just, inclusive, and transparent financial and production practices. Such findings affirm that the *Maqāṣid* approach is neither utopian nor merely normative, but practically operational through contemporary governance instruments in Indonesi. By centering ethics within innovation, Indonesia's halal industry positions itself as a global benchmark for responsible and sustainable business practices.

Nevertheless, the effective realization of this framework in Indonesia remains contingent upon robust public policies capable of managing the distributive consequences of digitalization. Without deliberate regulatory intervention, technological advancement risks reinforcing existing power asymmetries rather than promoting social justice in the Indonesian market. This study therefore emphasizes that Indonesia's public policy must prioritize distributed efficiency and inclusive governance to ensure that maṣlaḥah is genuinely achieved. By grounding digital transformation in *Maqāṣid al Sharīʿah*, Indonesian regulators can prevent the emergence of digital monopolies that marginalize small enterprises and undermine ethical competition. Accordingly, Maqāṣid-based digitalization offers a comprehensive blueprint for cultivating an ethical, inclusive, and resilient future for Indonesia's halal market.

Public Policy and the Digital Inclusivity of MSMEs

The implementation of Law No. 33 of 2014 functions as a pivotal regulatory anchor for Indonesia's mandatory halal certification regime. Through this legal framework, Indonesian public policy has actively accelerated digital transformation within the halal sector, particularly via the deployment of integrated platforms such as the nationally developed SIHALAL, which automates and streamlines certification procedures at scale. The introduction of these digital certification mechanisms has substantially reduced the administrative "labyrinth" (labirin) that historically discouraged Indonesian micro and small enterprises from formalizing their halal status. By consolidating certification services into a one-stop digital portal, the Indonesian state enhances accessibility, transparency, and real-time accountability within its halal governance (Dewi & Hakiki, 2023). Such government-led initiatives are therefore instrumental in modernizing public services and sustaining competitiveness in Indonesia's post-pandemic economic landscape.

Fiscal intervention through targeted programs such as Sehati 2025 further strengthens digital inclusivity by providing up to 1.2 million free halal certification quotas for Indonesian MSMEs. This policy approach exemplifies what is commonly referred to as "inclusive innovation," whereby regulatory instruments actively bridge the structural gap between large corporations and micro-enterprises in Indonesia. While earlier studies highlighted MSME reluctance due to high compliance costs (Reinhardt, 2020), the present analysis indicates that Indonesia's certification subsidies effectively alleviate financial barriers and incentivize participation in formal halal supply chains (Donny & Kurniawan, 2025). By removing cost-related constraints, Indonesian regulators enable grassroots businesses to expand market access and integrate into higher-value production networks (Zainorrahman & Reza Zulfikri, 2023). In this way, Indonesian MSMEs are repositioned as the backbone of the national halal economy rather than its periphery (Ghaliyati et al., 2025).

Despite these advances, a persistent digital divide remains within Indonesia, particularly due to uneven technological infrastructure and connectivity in rural and peripheral regions. Large enterprises typically possess the capacity to adopt sophisticated enterprise resource planning (ERP) systems and blockchain-based traceability, whereas many Indonesian MSMEs continue to struggle with basic digital literacy and technological readiness. This disparity risks fragmenting Indonesia's halal supply chain, as weak upstream digital integration can undermine end-to-end integrity and traceability. Consequently, Indonesian public authorities must assume the role of innovation diffusion accelerators by investing in targeted digital literacy programs, infrastructure development, and capacity-building initiatives. Without sustained and coordinated intervention, such technological asymmetries may impede Indonesia's strategic ambition to emerge as a global halal hub (Kristanti et al., 2023).

At the market level, the adoption of digital marketing and e-commerce platforms has been shown to significantly enhance Indonesian MSME market penetration and product visibility. Sharia-compliant e-commerce environments, characterized by transparent pricing mechanisms and the avoidance of ribā, further reinforce consumer trust and ethical market conduct in Indonesia. Empirical evidence suggests that younger consumer segments in Indonesia, particularly millennials, demonstrate a stronger preference for MSME brands that visibly communicate halal integrity through digital verification tools such as QR codes. This growing "halal awareness" movement compels Indonesian MSMEs to adopt higher standards of compliance and transparency to remain competitive in contemporary markets. As a result, digital inclusivity emerges as a critical driver of product diversification, entrepreneurial resilience, and long-term competitiveness for Indonesia's MSME sector (Hartini, 2017).

Regulatory innovation through the self-declare scheme has further expanded opportunities for Indonesian micro-business participation in the formal halal economy By leveraging digital applications for rapid and simplified verification, Indonesian micro-enterprises---particularly in the food sector can obtain legal certainty for their products with minimal procedural burden. While prior studies emphasized the importance of regulatory socialization, the present analysis underscores the complementary role of automated technical support in facilitating compliance among Indonesian MSMEs. This policy design promotes a structural shift in which micro-business actors are empowered to compete alongside larger firms within Indonesia's standardized halal markets (Anwar & Bin Sarip, 2024). Such measures are foundational for constructing a genuinely inclusive and equitable Indonesian halal industry ecosystem.

Effective public policy in Indonesia must also address the legal recognition and interoperability of digital records, smart contracts, and blockchain-based certification within the domestic Sharia and regulatory framework. The utilization of decentralized ledgers for halal verification necessitates Indonesian regulatory acceptance of digital proof as valid evidence of compliance. Interoperability challenges among disparate digital platforms and certification authorities remain a critical barrier, particularly in the context of Indonesia's international trade (Dupi & Inayat, 2025). To overcome these constraints, the Indonesian government is encouraged to pursue Mutual Recognition Agreements (MRAs) that facilitate cross-border acceptance of digital halal certificates (Azizah, 2025). Such harmonization reduces transaction costs and enhances the export competitiveness of Indonesian MSMEs in global halal markets.

Sustainable digital inclusivity in Indonesia further depends on collaborative governance involving state institutions, Islamic organizations, and fintech actors. Early involvement of Indonesian Sharia boards in the design phase of digital financial and certification systems a practice often described as "front-loaded fiqh" minimizes regulatory misalignment and accelerates implementation (Yusoff, 1997) This approach ensures that technological solutions are inherently aligned with Indonesian community values and ethical objectives *(maṣlaḥah)* (Melzatia et al., 2025). By partnering with local Islamic institutions and community organizations, the Indonesian government can also enhance grassroots digital literacy and foster collective ownership of digital transformation initiatives. Such collaborative efforts are essential for building a resilient and integrated Indonesian national halal value chain (Effendi et al., 2023).

The integration of fintech and *Sharia*-compliant finance mechanisms provides critical capital access for Indonesian MSMEs seeking to invest in digital technologies (Lumbu et al., 2025). Digital peer-to-peer (P2P) financing platforms offering interest-free or profit-sharing schemes reduce reliance on predatory credit and align financial inclusion with Islamic ethical principles in Indonesia. This financial support enables Indonesian MSMEs to upgrade operational standards and adopt blockchain-based traceability systems essential for global market participation. When access to ethical financing is coupled with digital certification, Indonesian MSMEs achieve higher levels of "halal brand integrity," strengthening consumer confidence and market positioning. These findings reinforce the proposition that economic empowerment and ethical compliance are mutually reinforcing objectives within Indonesia's halal economy.

Ultimately, the analysis suggests that Indonesia's public policy must evolve beyond rule enforcement toward proactive ecosystem building. This evolution entails the creation of regulatory sandboxes that allow Sharia-compliant digital innovations to be tested and refined without excessive administrative constraints in Indonesia. By prioritizing inclusive innovation and distributed efficiency, Indonesian policymakers can ensure that the digitalization of the halal industry delivers benefits across all segments of society. Such a holistic policy orientation is essential for realizing the *Maqāṣid al Sharīʿah* objectives of social justice and equitable wealth distribution in Indonesia. Achieving these outcomes positions Indonesia as a global leader in ethical and inclusive digital transformation within the halal economy.

Impact of the Sharia Value Chain on Economic Resilience and Welfare

The Sharia Value Chain (SVC) approach, reinforced by digital innovations such as blockchain and artificial intelligence (AI), contributes significantly to Indonesia's national economic resilience by establishing a production and distribution system grounded in trust and ethical governance. By embedding core Islamic values such as honesty *(ṣidq)* and trustworthiness *(amānah)* into supply chain operations, Indonesia's halal industry strengthens consumer confidence and institutional credibility. This trust capital directly enhances market penetration, with Indonesia's halal sector accounting for a significant portion of national gross domestic product (GDP). Within this framework, digitalization supports the Indonesian Astagatra dimensions of national resilience, particularly by fostering economic independence and systemic stability. Consequently, a digitalized halal ecosystem ensures that Indonesia's economic growth remains both sustainable and ethically anchored (*maqāṣid*-oriented).

From the perspective of the Resource-Based View (RBV) theory, the integration of digital traceability with halal assurance constitutes a strategic intangible asset that enhances Indonesia's national and firm-level competitivenes. Earlier studies emphasized the importance of halal supply chain management for organizational performance; the present analysis extends this insight by demonstrating that digital technologies significantly accelerate and amplify these benefits for Indonesian entities (Bachtiar et al., n.d.). By generating data that are valuable, rare, inimitable, and non-substitutable, Indonesian halal products gain premium positioning within niche international markets. This comparative advantage plays a critical role in reducing trade deficits and repositioning Indonesian products as global benchmarks of quality and ethical compliance. In this context, digital capability emerges as a prerequisite for Indonesian firms aspiring to achieve sustained global leadership.

Digitalization also enhances social welfare in Indonesia by protecting the public from harmful, unsafe, and fraudulent products. Consumer trust is strengthened through real-time verification mechanisms, such as QR codes, which allow instant access to information on the entire journey of raw materials and production processes for goods in the Indonesian market (Ridho et al., 2025). Previous studies on animal-based supply chains identified high risks of contamination and mislabeling; however, the implementation of digital audits has proven effective in mitigating these systemic vulnerabilities in Indonesia. This assurance of safety and integrity directly contributes to collective well-being *(maṣlaḥah),* which constitutes the ultimate objective of Islamic economic philosophy and a key goal of Indonesian development policy. Strengthening the "chain of integrity" ensures the fulfillment of the fundamental right to safe, wholesome, and halal food for Indonesian citizens.

Beyond production and consumption, digital technologies also facilitate a more equitable distribution of wealth through integrated zakat and waqf management systems in Indonesia. Blockchain-based platforms enable direct and transparent connections between zakat contributors and beneficiaries, thereby accelerating aid distribution to vulnerable populations within Indonesia, particularly during economic crises. Such mechanisms reduce social inequality and prevent excessive concentration of wealth among a limited elite in Indonesian society. Recent models suggest that permissioned distributed ledgers enhance donor trust by providing auditable and verifiable impact data for social programs in Indonesia (Kojongian, 2025). These developments demonstrate that digitalization can operationalize the *Maqāṣid al Sharīʿah* principle of social justice *(ʿadl ijtimāʿī)* in practical governance contexts in Indonesia.

The implementation of the SVC approach further contributes to environmental resilience in Indonesia by encouraging sustainable agricultural and livestock practices. Internet of Things (IoT) sensors and smart contracts enable continuous monitoring of resource usage, ensuring that production processes remain ethical, efficient, and environmentally responsible within Indonesian supply chains. This emerging "Green Halal" paradigm aligns with the growing environmental consciousness of Indonesian consumers. By integrating sustainability indicators into halal governance, Indonesia's industry aligns itself with global Sustainable Development Goals (SDGs) without compromising its *Sharia* foundations. These findings affirm that Islamic ethical principles and modern environmental stewardship are fundamentally compatible and mutually reinforcing for Indonesia's development path.

Economic growth is further stimulated through multiplier effects generated by the digitalization of Indonesia's Islamic economy. Integrated halal supply chains reduce transaction, logistics, and distribution costs, thereby increasing efficiency and affordability in Indonesia. This efficiency facilitates healthier capital circulation within the Indonesian domestic economy and strengthens linkages between upstream and downstream sectors. In this regard, earlier theoretical insights on Islamic development, which emphasize the reduction of market friction and unjust barriers, find concrete realization through Indonesia's digital infrastructure (Chapra, 2020). As a result, the digital halal ecosystem emerges as a key engine for sustainable employment generation and equitable economic prosperity in Indonesia.

National resilience is further reinforced when Indonesia's halal industry operates on a foundation of spiritual values and technological self-reliance. By reducing dependency on non-*Sharia*-compliant global financial systems, Indonesia strengthens its internal economic defenses and policy autonomy. Digital cybersecurity measures embedded within Sharia-compliant systems safeguard sensitive economic data and ensure operational continuity in the face of external disruptions for Indonesian enterprises (Alghadi et al., 2024). This orientation aligns with the Astagatra framework's emphasis on sovereignty, security, and resilience in the digital era as applied to Indonesia (Nastiti & Kasri, 2019). Strengthening the digital halal value chain thus constitutes a strategic imperative for long-term national stability and growth in Indonesia.

In synthesis, the convergence of the *Sharia* Value Chain and digital technology produces a transformative welfare model grounded in ethical governance for Indonesia. Within this model, technology functions as the "body," while *Sharia* ethics serve as the "soul" of Indonesia's modern halal economy. When these dimensions operate in harmony, they generate a resilient system that benefits individual citizens while reinforcing collective national strength in Indonesia. The findings underscore that digital capacity is not an end in itself, but a vehicle for realizing the *Maqāṣid al Sharīʿah* objectives of justice, prosperity, and shared well-being within the Indonesian context. Achieving this synergy is central to Indonesia's aspiration to become a global leader in the ethical digital economy.

Finally, the study argues that social resilience emerges as a natural byproduct of a transparent, inclusive, and values-driven digital ecosystem in Indonesia. Protecting vulnerable groups through digital education and literacy initiatives prevents social exclusion and strengthens communal solidarity within Indonesian society. Such collective trust mitigates the socio-cultural fragmentation often associated with rapid technological change in the Indonesian context. By grounding innovation in *Maqāṣid* values, Indonesian policymakers ensure that technology advances the well-being of the entire ummah and nation rather than a privileged minority. This integrated conceptual framework thus offers a sustainable pathway for the future development of Indonesia's halal industry in the digital era.

Conclusion

This study concludes that the digitalization of Indonesia's halal industry, when guided by the principles of *Maqāṣid al Sharīʿah*, represents a transformative structural development that strengthens product integrity, social welfare, and sustainable national economic growth. The integration of advanced technologies such as blockchain and artificial intelligence (AI) into the halal supply chain is not solely intended to improve operational efficiency, but also serves as a strategic mechanism to ensure sharīʿah compliance in an increasingly globalized and complex market environment. Through supportive and inclusive public policies, Indonesia has positioned digital transformation as an ethical process that modernizes the halal ecosystem while ensuring that the benefits of innovation are distributed fairly among all economic actors, including large corporations and micro, small, and medium enterprises (MSMEs).

As a result, Indonesia offers a conceptual framework that combines technological advancement with spiritual, moral, and social values, which may serve as a model for other Muslim-majority countries. The findings further demonstrate that digitalization based on *Maqāṣid al Sharīʿah* functions as a moral foundation for technology adoption. Digital traceability systems protect religion *(ḥifẓ al dīn)* by guaranteeing halal authenticity, preserve life *(ḥifẓ al nafs)* through product safety and hygiene, and safeguard wealth (*ḥifẓ al māl*) by reducing fraud and information asymmetry. In addition, Indonesia's digital public policies, including mandatory halal certification under Law No. 33 of 2014 and the SIHALAL system, have significantly improved the inclusivity and competitiveness of MSMEs. Programs such as Sehati and certification subsidies have reduced administrative barriers and accelerated technological adoption at the grassroots level, enabling smaller enterprises to participate in both domestic and global halal markets. Moreover, the integration of blockchain and AI within the Sharia Value Chain (SVC) framework strengthens transparency, consumer trust, and national economic resilience. This transformation supports Indonesia's long-term ambition to become a global halal hub while reinforcing economic independence and technological self-reliance. Despite limitations related to secondary data reliance and regional disparities, this study highlights the importance of future empirical research, stronger institutional coordination, and expanded digital infrastructure. Ultimately, a Maqāṣid-based digital transformation enables Indonesia to develop a halal economy that is not only prosperous and globally competitive, but also ethical, inclusive, and socially sustainable.

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