

ACCELERATING INDONESIA'S HALAL INDUSTRY TOWARDS A GLOBAL SUPPLY CHAIN HUB: THE SYNERGISTIC ROLE OF EDUCATIONAL INSTITUTIONS AND GOVERNMENT

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ABSTRAK

Indonesia memiliki visi besar untuk bertransformasi dari pasar konsumen halal terbesar menjadi pusat produsen dan rantai pasok halal global (*Global Halal Hub*). Artikel ini mengkaji strategi akselerasi industri halal di Indonesia dengan berfokus pada sinergi model *Triple Helix*, secara spesifik mengupas peran pemerintah dan institusi pendidikan (Perguruan Tinggi). Menggunakan metode penelitian kualitatif dengan pendekatan *Systematic Literature Review* (SLR), kajian ini menganalisis literatur, regulasi, dan laporan industri terkini. Hasil pembahasan menunjukkan bahwa pemerintah berperan krusial sebagai regulator (melalui BPJPH dan KNEKS), fasilitator diplomasi internasional, dan penyedia infrastruktur Kawasan Industri Halal (KIH). Sementara itu, institusi pendidikan berperan dalam riset inovasi (seperti substitusi bahan non-halal), penciptaan Sumber Daya Manusia (SDM) tersertifikasi, dan inkubasi bisnis melalui *Halal Center* di kampus. Kesimpulan dari penelitian ini menegaskan bahwa tanpa sinergi yang terstruktur antara kurikulum pendidikan yang adaptif dengan peta jalan industri halal pemerintah, akselerasi menuju *halal value chain* global akan berjalan lambat. Rekomendasi diberikan untuk pembentukan platform kolaborasi riset industri halal terpusat.

Kata Kunci: Rantai Pasok Halal, Ekonomi Syariah, Sinergi Institusi, Industri Halal.

ABSTRACT

Indonesia envisions transforming its position from the world's largest halal consumer market into a leading producer and Global Halal Hub. This article examines the acceleration strategy of the halal industry in Indonesia by focusing on the Triple Helix synergy model, specifically analyzing the roles of the government and higher educational institutions. Employing a qualitative research method with a Systematic Literature Review (SLR) approach, this study analyzes current literature, regulations, and industry reports. The findings reveal that the government plays a crucial role as a regulator (through BPJPH and KNEKS), an international diplomacy facilitator, and a provider of Halal Industrial Estates (KIH) infrastructure. Meanwhile, educational institutions contribute significantly through applied innovation research (such as non-halal material substitution), the creation of certified human resources, and business incubation via university-based Halal Centers. This study concludes that without a structured

synergy between adaptive educational curricula and the government's halal industry roadmap, the acceleration toward a global halal value chain will remain stagnant. The study recommends the establishment of a centralized halal research and development (R&D) collaborative platform.

Keywords: *Halal Supply Chain, Islamic Economics, Institutional Synergy, Halal Industry*

INTRODUCTION

The global Islamic economy has transitioned from a niche market into a formidable macroeconomic force, demonstrating an exponential growth trend that reshapes global trade dynamics. According to the State of the Global Islamic Economy (SGIE) Report (SGIE, 2023), global Muslim consumer spending across diverse sectors—including halal food, beverages, pharmaceuticals, cosmetics, and lifestyle products—continues to increase significantly each year. This surge is driven by favorable demographic shifts, rising ethical consumerism, and the increasing purchasing power of Muslim populations worldwide. However, within this lucrative global landscape, Indonesia presents a unique and somewhat paradoxical case. Housing the world's largest Muslim population, accounting for over 87% of its roughly 270 million citizens, Indonesia has historically acted more as a target market and net importer of halal goods rather than a primary producer or exporter.

Recognizing this imbalance and the massive untapped economic potential, the Indonesian government has aggressively pivoted its strategic focus. The launch of the Indonesian Islamic Economics Masterplan (MEKSI) 2019-2024 serves as a monumental policy milestone. The primary vision articulated in MEKSI is to transform the country from a captive consumer base into the world's leading halal production center and global hub (KNEKS, 2019). To realize this ambitious vision, merely focusing on end-product halal certification is no longer sufficient; mastering the end-to-end Halal Value Chain is absolutely necessary. This complex supply chain encompasses not only the sourcing of raw materials but also intricate logistics, processing, manufacturing, warehousing, and retail distributions. Every single node within this network must guarantee absolute halal traceability and integrity.

However, the transition from consumer to producer is fraught with complex, systemic hurdles. The current primary challenge impeding this acceleration is the severe shortage of certified, highly skilled human resources specifically tailored for the halal industry. There is a critical deficit in qualified halal auditors, certified slaughterers (*juleha*), halal supply chain managers, and syariah-compliant quality control specialists (Sukmana, 2020). Furthermore, the industry is heavily crippled by a lack of innovative research to substitute imported raw materials—many of which have ambiguous halal statuses. Currently, domestic manufacturers rely heavily on imported active pharmaceutical ingredients, industrial enzymes, and gelatin.

This critical juncture is exactly where the role of educational institutions, particularly State Islamic Higher Education Institutions (PTKI) and major public universities, becomes vital. Universities are not merely centers for theoretical learning; they are the engines of research, development, and human capital formation. This research aims to analyze how the synergy between macroeconomic government policies and the academic capacity of educational institutions can collaboratively accelerate Indonesia's strategic position in the global halal supply chain. By bridging the gap between top-down regulatory frameworks and bottom-up academic innovations, this study seeks to provide a definitive roadmap for Indonesia's ascent as a Global Halal Hub.

LITERATURE REVIEW

To properly contextualize the urgency and theoretical foundation of this research, an extensive review of previous studies focusing on halal supply chain management and institutional synergy has been conducted. The existing literature, spanning policy analysis, supply chain logistics, and educational roles, can be synthesized into three main thematic pillars:

Halal Supply Chain Integrity and Management

The conceptual understanding of the halal industry has evolved drastically over the last decade, shifting from a narrow focus on the final product's certification to a comprehensive, systemic approach known as Halal Supply Chain Management (HSCM). Tieman et al. (2012) and Tieman (2021) are foundational voices in this

domain, emphasizing that HSCM principles require strict, uncompromising separation between halal and non-halal materials throughout the entire logistical network to avoid cross-contamination. This means that storage facilities, transportation vessels, and handling equipment must either be dedicated solely to halal products or undergo stringent ritual cleansing processes.

Furthermore, Ali et al. (2017) argue that maintaining food supply chain integrity must go far beyond standard paper certification; it requires robust traceability systems, transparent logistics, and modern technological integration (such as blockchain or advanced RFID tracking) to ensure consumer trust. In the specific context of Southeast Asia, Ab Talib and Hamid (2014) noted that while halal logistics offer significant economic opportunities and competitive advantages, high operational costs, lack of dedicated infrastructure, and the absence of standardized logistical practices remain major barriers. The archipelagic nature of Indonesia further complicates this, making inter-island halal logistics exceptionally challenging and costly.

Challenges in the Indonesian Halal Industry Landscape

Despite possessing a massive, culturally aligned consumer base, Indonesia faces deeply entrenched systemic challenges in its transition to a production hub. Adawiyah (2020) highlights that the primary obstacles for Indonesia's halal industry include an over-reliance on imported raw materials and a severe lack of technological innovation. For example, the domestic pharmaceutical and cosmetic sectors still import the vast majority of their base chemicals, making end-to-end halal assurance highly vulnerable to external supply shocks.

Similarly, Wahyuni and Rokhman (2021) point out structural deficiencies. While the government has initiated the establishment of specialized Halal Industrial Estates (Kawasan Industri Halal/KIH) designed to cluster halal manufacturing and streamline logistics, the actual readiness of the infrastructure is still suboptimal. Furthermore, the integration of the Small and Medium Enterprise (SME) ecosystem within these mega-estates remains a significant challenge. SMEs form the backbone of Indonesia's economy, yet they often lack the capital, knowledge, and operational

scale required to participate in advanced Halal Industrial Estates or global supply chains.

The Synergistic Role of Higher Education

Addressing these systemic bottlenecks requires robust, cross-sectoral collaboration rather than siloed institutional efforts. Huda et al. (2021) propose a comprehensive penta-helix strategy involving the government, academia, business/industry, community, and media to develop a resilient halal industry. Within this ecosystem, the specific, targeted role of universities is highlighted as exceptionally crucial.

Fahmi and Rofaida (2022) conducted a systematic review emphasizing that higher educational institutions act as the primary catalyst for halal ecosystem development, primarily through applied research and development (R&D). Universities possess the laboratory infrastructure necessary to conduct reverse engineering and material substitution. Moreover, Purnomo (2023) highlighted the urgency of synergy between the Halal Product Assurance Organizing Agency (BPJPH)—the state body responsible for certification—and universities. This synergy is particularly vital in accelerating the halal certification process for local grassroots businesses via campus-based Halal Centers, which act as local incubators, guiding SMEs through the complex bureaucratic and technical requirements of certification.

Research Gap

While previous studies have extensively discussed the theoretical frameworks of HSCM (Tieman, 2021) and the generalized role of universities within a penta-helix model (Fahmi & Rofaida, 2022), there remains a distinct lack of specific, operational frameworks addressing how modern academic curricula and state policies intersect. Specifically, there is limited literature on how Indonesia's recent educational policies, such as the *Kampus Merdeka* (Emancipated Learning) policy, and targeted university R&D can directly plug into the government's global supply chain ambitions. This study fills this critical gap by providing a structured, actionable synergy matrix between government macro-policies and higher

education capabilities, moving beyond abstract concepts to propose concrete operational integration designed to accelerate Indonesia's status as a Global Halal Hub.

METHOD

Methodological Approach and Justification

This study employs a qualitative descriptive method, heavily utilizing Library Research integrated with a Systematic Literature Review (SLR) approach. The selection of the SLR method is strictly grounded in and justified by previous methodological practices within the specialized field of halal industry research. For instance, Fahmi and Rofaida (2022) successfully utilized a systematic review methodology to map the role of higher educational institutions in the halal ecosystem, demonstrating the method's efficacy in identifying institutional roles. Similarly, Muhamed et al. (2014) demonstrated that SLR is a highly effective methodology for synthesizing scattered, multidisciplinary studies and proposing a comprehensive conceptual framework for Halal Supply Chain Management (HSCM). By adopting this rigorously structured approach, this study systematically maps the existing gap between macro-economic policies and institutional academic capacities without the bias often associated with traditional narrative reviews.

Data Collection Strategy

To ensure a robust and comprehensive analysis, secondary data were meticulously gathered from two primary, highly authoritative streams. This bifurcated data collection strategy ensures that both the policy intent and the academic reality are captured accurately.

- a. **Policy and Institutional Documents:** This category forms the regulatory baseline of the research. It includes primary government blueprints such as the Indonesian Islamic Economics Masterplan (MEKSI) 2019-2024 formulated by the National Committee for Islamic Economy and Finance (KNEKS, 2019). It also incorporates the latest Halal Economy Development Report (KNEKS, 2023), which provides statistical updates on policy implementation, and the foundational Halal Product Assurance regulations (specifically Law No. 33 of 2014), which fundamentally shifted halal

certification in Indonesia from a voluntary label to a mandatory state requirement.

- b. **Academic Literature:** This dataset comprises peer-reviewed empirical and conceptual articles sourced from nationally accredited journals (Sinta 1 and Sinta 2 indices) and reputable international databases (such as Scopus and Web of Science). The search strategy utilized specific, Boolean-linked keywords to ensure precision, such as "Halal Supply Chain Integrity" (Ali et al., 2017; Zulfakar et al., 2014), "Halal Logistics" (Karia & Asaari, 2016), and "Institutional Synergy in Halal Industry" (Purnomo, 2023). Timeframes for inclusion were predominantly focused on the last decade (2014-2024) to capture the most relevant technological and policy shifts.

Data Analysis

The collected data, encompassing hundreds of pages of policy documents and academic texts, were examined using qualitative content analysis. This involved a systematic coding process. The analysis initially focused on extracting and categorizing textual data regarding the respective, isolated roles of the government (as a regulator/facilitator) and educational institutions (as knowledge/resource providers).

To construct the proposed collaborative model, the analysis was conceptually guided by the Triple Helix (Government-Academia-Industry) and Penta-helix (Government-Academia-Industry-Community-Media) synergy frameworks. These frameworks have been proven reliable in previous qualitative studies for developing the halal sector, such as the halal tourism development model proposed by Ridwan and Fauzi (2021) and the broader halal industry strategy by Huda et al. (2021). Through this analytical lens, the raw qualitative data were synthesized, identifying points of intersection and mutual dependency, which were subsequently structured into an actionable matrix of synergy.

DISCUSSION

Indonesia's Position in the Global Halal Supply Chain: A Macro Analysis

The empirical reality reveals a stark paradox in Indonesia's positioning within the global halal ecosystem. Despite the ambitious, multi-billion-dollar targets set by the government in the MEKSI blueprint (KNEKS, 2019), the upstream halal supply chain on a global scale is still heavily dominated by Muslim-minority countries. Nations such as Brazil, Australia, and New Zealand hold dominant positions, particularly in the highly lucrative halal meat export sector (SGIE, 2023). Indonesia, conversely, remains characterized by high domestic consumption and high raw material importation.

The academic literature emphatically suggests that transforming from a net importer into a sovereign production hub requires total mastery over Halal Supply Chain Management (HSCM). According to the foundational works of Tieman et al. (2012) and Tieman (2021), a non-negotiable principle of HSCM is ensuring absolute separation between halal and non-halal materials at every node—from farm to fork. However, domestic implementation in Indonesia faces severe, multifaceted hurdles. As highlighted by Ab Talib and Hamid (2014) in the broader Southeast Asian context, high logistics costs and highly fragmented infrastructure remain significant barriers. Indonesia's geography, comprising thousands of islands, means that maintaining a cold-chain logistics network that is both temperature-controlled and halal-compliant is economically daunting.



Figure 1. Halal Industry Supply Chain Hub

Furthermore, modern halal supply chains demand far more than localized trust; they require advanced, digitally verified tracking and tracing technologies to guarantee global halal integrity and prove zero cross-contamination (Bahrudin et al., 2011; Ali et al., 2017). Currently, Indonesia's deep dependency on imported critical raw materials makes maintaining this end-to-end integrity highly vulnerable. For instance, the sourcing of gelatin (widely used in food, pharmaceuticals, and cosmetics) and industrial enzymes is largely dependent on foreign suppliers whose halal oversight may not align perfectly with Indonesian standards. Without substantial domestic innovation to produce these materials locally, Indonesia's halal ecosystem remains fragile and globally uncompetitive (Adawiyah, 2020). Figure 1 is an illustration of the halal industry supply chain.

Synergy of Roles: The Government and Education Collaboration Model

Addressing the aforementioned bottlenecks—logistical fragmentation, raw material dependency, and human capital deficits—requires an immediate departure from traditional, siloed institutional approaches. Drawing upon the proven conceptual frameworks of the Triple Helix (Ridwan & Fauzi, 2021) and the broader Penta-helix (Huda et al., 2021), this study proposes a targeted, operational synergy matrix explicitly linking the government and higher educational institutions. Figure 2 illustrates the Penta-helix in question.



Figure 2. Penta-helix Model.

The government's primary function within this ecosystem must remain focused on acting as an overarching regulator and macroeconomic facilitator. Wanto and Samsuri (2020) argue that the shift to mandatory halal certification via Law No. 33 of 2014 has massive legal and financial implications for businesses of all sizes. Consequently, the government is obligated to provide adequate, accessible infrastructure to help businesses comply. This includes the rapid development and optimization of Halal Industrial Estates (KIH) (Wahyuni & Rokhman, 2021), which offer integrated halal logistics, specialized port access, and centralized halal testing laboratories. Furthermore, on an international scale, Yusuf (2022) notes that the government—through the Ministry of Foreign Affairs and the Ministry of Trade—must actively pursue aggressive economic diplomacy. The goal is to secure Mutual Recognition Agreements (MRA) for Indonesian halal certificates (issued by BPJPH) abroad, ensuring that products manufactured in Indonesia face no non-tariff barriers when exported to the Middle East, Europe, or other OIC (Organization of Islamic Cooperation) nations.

However, the physical infrastructure and legal frameworks built by the government are hollow without the intellectual and human capital to operate them. To fill the ecosystem created by state policy, educational institutions must provide robust academic and technological backing. The specific, operational matrix of this synergy is illustrated in Table 1 below, delineating responsibilities across three critical aspects: Human Resource Development, Innovation & Research, and SME Empowerment.

Table 1. The Matrix of Academic and Human Capital Backing in the Halal Supply Chain

Aspects of Halal Supply Chain	Government Role (Regulator & Facilitator)	Educational Institution Role (Academics & R&D)	Synergy Point (The Collaborative Action)
Human Resource Development	Establishing National Competency Standards (SKKNI) for specific Halal sector professions (e.g., auditors, supply chain managers, butchers).	Designing specialized Islamic Economics and Halal Logistics curricula that are directly aligned with SKKNI requirements.	Mass certification of university students as Halal Process Assistants (Pendamping Proses Produk Halal) prior to their graduation.
Innovation & Research	Providing applied R&D funding and grants (via state bodies like BRIN, Ministry of Religion, or LPDP) targeting halal material independence.	Conducting advanced laboratory reverse engineering and developing viable substitutes for imported, critical non-halal or ambiguous materials (e.g., creating halal bovine/marine gelatin).	Commercialization and downstreaming of successful university R&D results for scalable, mass production within state-backed Halal Industrial Estates (KIH).
SME Empowerment	Offering and funding the Free Halal Certification (SEHATI) program via the Halal Product Assurance Organizing Agency (BPJPH)	Establishing dedicated, campus-based Halal Centers equipped with expert faculty to incubate, train, and mentor local grassroots SMEs.	Integrating community service programs (such as KKN - Kuliah Kerja Nyata) specifically focused on accelerating and auditing SME halal certification at the village level.

Aspects of Halal Supply Chain	Government Role (Regulator & Facilitator)	Educational Institution Role (Academics & R&D)	Synergy Point (The Collaborative Action)
for micro and small enterprises.			

Deepening the Synergy: Deconstructing the Matrix

To truly understand the potential of this proposed model, we must analyze the synergy points established in the matrix.

On Human Resource Development: The bottleneck identified by Sukmana (2020) regarding human resources can be entirely mitigated if universities align their output with the government's SKKNI (National Competency Standards). Currently, many Islamic economics programs focus heavily on Islamic banking and finance, often neglecting the real-sector halal industry. By embedding halal supply chain modules, risk management, and halal auditing into the curriculum, universities can transform their graduates into immediate assets for the industry. The synergy point—mass certification of students as Halal Process Assistants—is a game-changer. It provides the government with a massive, educated workforce to help audit SMEs, while giving students a highly marketable professional certification alongside their degree.

On Innovation & Research: The dependency on foreign raw materials (Adawiyah, 2020) is an issue of national economic sovereignty. Government agencies like BRIN (National Research and Innovation Agency) have the funds, but universities have the specialized faculties (Chemistry, Pharmacy, Food Technology). The synergy requires the government to heavily subsidize specific research agendas, such as the synthesis of halal vaccines, halal pharmaceutical coatings, or plant-based industrial enzymes. The most critical step is the third column: commercialization. Too often, university research remains trapped in academic journals. The government must actively facilitate the transfer of this technology

from university laboratories to the Halal Industrial Estates (KIH) to be scaled up by private businesses.

On SME Empowerment: The SEHATI program by BPJPH is a visionary step to formalize the grassroots economy, but bureaucratic hurdles often intimidate micro-entrepreneurs. University Halal Centers bridge this gap perfectly. They act as the localized, friendly face of the government's regulatory framework. By deploying students through KKN (community service) to local food stalls, home industries, and traditional slaughterhouses, universities provide free consulting and administrative assistance, rapidly accelerating the government's quota for certified SMEs.

Acceleration through Kampus Merdeka and Halal Centers

The practical, day-to-day implementation of this macro-synergy heavily relies on agile institutional adaptations within universities themselves. As established, the lack of practically competent human resources remains the most critical vulnerability for the Indonesian halal industry (Sukmana, 2020). To rapidly bridge this gap, universities can and must optimize the Ministry of Education's *Merdeka Belajar Kampus Merdeka* (MBKM - Emancipated Learning) program.

The MBKM policy allows students to spend up to three semesters outside their core study program. By facilitating direct, credit-earning student internships in halal logistics companies, FMCG (Fast-Moving Consumer Goods) manufacturing plants, or within the management offices of Halal Industrial Estates (KIH), universities force a paradigm shift. Education moves from purely theoretical, classroom-based Islamic jurisprudence (*fiqh muamalah*) to hands-on, practical supply chain management, quality control, and industrial compliance (Karia & Asaari, 2016). Students learn the realities of cold-chain logistics, warehousing separation protocols, and digital traceability systems firsthand, graduating as battle-tested professionals rather than mere theoreticians.

Moreover, the formal establishment and empowerment of university-based Halal Centers serves as the ultimate catalyst in this synergistic model. Fahmi and Rofaida (2022) state that universities must function as the backbone of the halal

ecosystem through their R&D and community outreach capabilities. In direct alignment with this, Purnomo (2023) empirically proved that a direct, formalized synergy between BPJPH and university Halal Centers significantly accelerates the certification process for micro, small, and medium enterprises (SMEs).

These Halal Centers act as localized business incubators. They perform the critical task of translating highly complex halal logistics, chemical safety standards, and legal compliance requirements (Omar & Jaafar, 2011) into simplified, actionable practices for local grassroots economies. When a local cassava chip producer or a neighborhood baker wishes to export or even just enter modern retail spaces, the university Halal Center provides the laboratory testing, the bureaucratic navigation, and the operational auditing required to achieve BPJPH certification. In this way, the university is no longer an ivory tower; it becomes the direct implementer of government economic policy at the community level.

CONCLUSION

This study set out to critically examine the strategic acceleration of Indonesia's halal industry toward becoming a dominant Global Halal Hub, specifically analyzing the landscape through the lens of macro-institutional synergy. The findings emphatically reveal that Indonesia's current paradox—acting predominantly as the world's largest consumer and importer of halal goods rather than a leading producer—stems from deep, systemic bottlenecks in the upstream supply chain. Most notably, the literature highlights a severe deficit in practically certified human resources and a crippling domestic dependency on imported critical raw materials, both of which threaten the integrity of the end-to-end Halal Supply Chain.

To systematically overcome these entrenched barriers, this study concludes that a top-down, purely regulatory government approach is entirely insufficient on its own. A structured, formalized, and legally binding synergistic collaboration between the government and higher educational institutions is the definitive catalyst required for acceleration. The proposed synergy matrix formulated in this study delineates clear, actionable, and complementary roles. The government must aggressively act as the macro-ecosystem builder: regulating national competency

standards, funding and facilitating Halal Industrial Estates (KIH), and conducting relentless international diplomacy to secure Mutual Recognition Agreements (MRAs). Conversely, educational institutions must serve as the intellectual and operational engine of the ecosystem by providing immediately competent human capital and hyper-focused, applied R&D aimed at material substitution.

Practically, the integration of the *Merdeka Belajar Kampus Merdeka* (MBKM) curriculum framework is essential. It allows universities to bridge the longstanding gap between theoretical Islamic jurisprudence and the harsh realities of industrial supply chain logistics. Furthermore, university-based Halal Centers have been proven to be the most effective nodes within the penta-helix model, acting as critical business incubators for SMEs and serving as the primary vehicle to accelerate the government's free halal certification (SEHATI) targets at the grassroots level.

Limitations and Future Research

While this study provides a robust, theoretically grounded conceptual framework based on a Systematic Literature Review (SLR), it is necessary to acknowledge certain methodological limitations. The proposed synergy matrix remains largely conceptual, constructed primarily through the synthesis of secondary data, existing academic literature, and government policy documents. Therefore, future research must transition from conceptualization to empirical validation. It is highly recommended that future scholars conduct empirical field studies—such as large-scale quantitative surveys of SME readiness, or in-depth qualitative case studies directly within the operational environments of Indonesia's Halal Industrial Estates (KIH). Such empirical efforts are required to measure the actual real-world effectiveness, economic friction, and operational challenges of implementing this collaborative model on the ground.

Policy Recommendations

Based on the comprehensive findings of this review, this study strongly recommends that national policymakers (such as KNEKS and BPJPH) and academic leaders establish a formalized "Centralized Halal R&D Collaborative

Platform." Currently, research is fragmented across hundreds of universities without a unified commercialization pipeline. This centralized platform would act as a direct, legally formalized bridge connecting state-funded university innovations—such as vital non-halal material substitution research and advanced blockchain traceability software—directly with the commercialization needs of the private halal industry. By institutionalizing this link, Indonesia can ensure its sovereign capability to innovate, govern, and ultimately export its end-to-end halal value chain to the global market, truly realizing its destiny as the world's leading Global Halal Hub.

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