



Print ISSN: 1738-3110 / Online ISSN 2093-7717
 JDS website: <http://accesson.kr/jds>
<http://doi.org/10.15722/jds.23.05.202505.97>

Halal Value Chain Model in Halal Ecosystem of Malaysia

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Received: February 05, 2025. Revised: March 20, 2025. Accepted: May 05, 2025.

Abstract

Purpose: This study develops a Halal Value Chain model within Malaysia's halal ecosystem using the Analytic Network Process (ANP) approach. It evaluates complex relationships among sectors such as halal food, tourism, fashion, and Islamic finance to enhance the ecosystem's effectiveness and growth. **Research design, data, and methodology:** Employing both qualitative and quantitative methods, data is gathered through in-depth interviews and observations with halal practitioners and experts. The ANP method analyzes the data, identifying strategic priorities that reinforce the halal ecosystem and address interdependencies. **Results:** Findings highlight the need to enhance integrity and transparency throughout the halal supply chain. Establishing international standards for halal products is crucial for ensuring consistency and building consumer trust globally. Strategic priorities identified include value chain reinforcement, institutional effectiveness, product diversification, and domestic market expansion. **Conclusions:** The study concludes that collaboration among stakeholders, including government, private sector, and financial institutions, is essential for creating a sustainable halal ecosystem. The findings will help the Malaysian government formulate strategic policies to promote the halal industry and guide stakeholders in enhancing the halal value chain through technological innovations and effective marketing strategies. The proposed model serves as a reference for future research and development of integrated policies for a robust, globally competitive halal ecosystem.

Keywords: Halal Value Chain, Halal Ecosystem, Strategic Priorities, Stakeholder Collaboration

JEL Classification Code: L15; Q56; D23; O14

1. Introduction

Islam is the fastest-growing religion in the world, with an annual growth rate of 1.5%. By 2030, the Muslim population is projected to make up 26.4% of the global population (Reuters, 2015). This rise in the global Muslim population has led to increased awareness across various industries, prompting them to seize opportunities in the halal

sector. The growing interest among industry players is driven by market trends that positively influence halal offerings across a range of commodities (Al-Kwafi et al., 2019).

Awareness of halal products across multiple industries has significantly developed (Sandkici, 2011; Wilson, 2012). Industries focusing on halal compliance include halal transportation (Ngah et al., 2022), halal food (Jazwir et al.,

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2023; Nawi et al., 2023; Fischer, 2016; Al-Kwifí et al., 2019), halal fashion (Theingi & Tahir, 2016), and halal financial institutions (Khan, 2008), with various models, such as halal crowdfunding schemes (Schwienbacher & Larralde, 2010; Aderemi & Ishak, 2020; Ishak & Nasir, 2023). This shift toward halal industries is driven by two main factors: government policies (Talib & Li Pang, 2021) and growing market/user demand, coupled with the rapid advancement of information technology (Sayogo, 2018).

The halal lifestyle phenomenon demonstrates a synergy between the government as a regulator, organizations, communities, and the private sector as users and market demand representatives, industries as drivers and responders to change, and financial institutions as intermediaries supporting the acceleration of the real sector. From a halal perspective, the integration of these sectors is referred to as the halal value chain. Nik et al. (2009) argue that for the halal value chain to be robust, there must be synergistic efforts among Islamic organizations, such as halal producers, traders, buyers, and consumers worldwide. Moreover, the halal value chain can only be fully realized if all entities within the ecosystem maintain coordination, integration, and well-established value chains (Geffer et al., 2005).

Malaysia has swiftly capitalized on opportunities within the halal food and beverage industry, a sector that holds the largest market share, valued at USD 1.303 billion in 2017 and projected to reach USD 1.863 billion by 2023 (Jazwir et al., 2023). The industry's response to government regulations, such as SM1500, is closely linked to the rising consumer demand for halal food assurance, encompassing safety, comfort, and protection (Al-Kwifí et al., 2019). In Palestine, the implementation and certification of halal standards have also positively impacted corporate performance across operational, financial, and marketing aspects, with the depth of halal implementation acting as a full mediator in operational performance and a partial mediator in marketing and financial performance (Ameer, 2024). Khan (2008) observed that Islamic financial institutions and banking grew rapidly in response to halal awareness, especially after the 2008 global financial crisis. Despite the financial sector's role in stabilizing the economy, SMEs in Malaysia still rely heavily on conventional financing (Abdullah & Oseni, 2017). A major challenge in developing halal finance is the lack of microfinance entities like Indonesia's BMT, though crowdfunding using Islamic instruments like Qard Al-Hasan is being explored (Aderemi & Ishak, 2020). Research in Palestine shows a positive link between halal certification and SME performance, particularly in financial and operational aspects, with operational performance acting as a mediator. Further research with larger samples and alternative designs, such as longitudinal studies, is recommended (Ameer, 2024).

Efforts to expand halal finance also intersect with technological innovations. Advances such as the rise of fintech and blockchain technology (Aderemi & Ishak, 2023) are driving changes in how financial institutions interact with the real economy. These technologies enable new modes of intermediation, enhancing the connection between the financial and real sectors, and offer innovative ways to address the financial needs of small enterprises in Malaysia's halal industry.

This research explores real-world phenomena by using quantification methods to model and confirm findings. Validation is then conducted through expert consultation to refine the models developed in earlier stages. To identify potential variables connected to the value chain, the researchers utilized Vosviewer, a tool that maps relationships between independent variables.

The researchers were aided by information on several variables connected to and intersecting with the halal value chain. They conducted an initial mapping of variables that have a close and frequently discussed relationship with the halal value chain, as well as those that rarely have direct connections to it. Through this research, the researchers will further explore the halal value chain model using the Analytic Network Process (ANP) approach. This approach

Country	GIEI	Halal Food	Islamic Finance	Muslim-Friendly Travel	Modest Fashion	Pharma & Cosmetics	Media & Recreation
1. Malaysia	290.2	209.8	389.0	98.3	43.7	80.2	59.9
2. Saudi Arabia	155.1	51.1	234.2	36.8	22.1	33.4	34.7
3. UAE	133.0	104.4	142.5	78.3	235.6	72.1	125.3
4. Indonesia	91.2	71.5	111.6	45.3	57.9	47.5	43.6
5. Jordan	88.1	39.6	124.6	43.3	18.5	39.1	31.6
6. Bahrain	86.9	42.2	121.9	31.9	16.7	33.5	42.3
7. Kuwait	73.3	42.2	99.2	27.1	17.5	33.3	40.8
8. Pakistan	70.9	54.7	91.1	23.6	30.6	32.5	12.9
9. Iran	64.0	60.5	74.0	28.8	33.5	55.9	26.6
10. Qatar	63.1	44.3	80.1	36.7	20.3	32.1	40.2
11. Oman	60.0	47.1	73.4	33.2	28.7	33.5	35.3
12. Turkey	55.9	70.7	49.9	62.7	75.1	43.3	34.6
13. Nigeria	53.1	20.7	76.6	14.1	19.8	21.6	16.7
14. Sri Lanka	49.2	27.3	66.6	13.3	26.2	20.1	18.4
15. Singapore	47.4	125.2	16.9	42.6	30.6	62.9	46.8

Figure 1: Global Islamic Economy Report

Several countries have affirmed and positively responded to the halal value chain phenomenon, including Malaysia (Salahuddin et al., 2021), Indonesia (Sayogo, 2018), Japan (Takeshita, 2014), Lebanon (Farah, 2021), and the United Kingdom. Malaysia stands out as a model country, supporting the halal value chain from upstream to downstream in both the real and financial sectors. This claim is supported by data from the State of Global Islamic Economy Report from 2020 to 2023, where Malaysia consistently ranked first in the comprehensive index of 81 countries in the Islamic economy ecosystem relative to their size (SGIE 2020; SGIE 2021; SGIE 2022; SGIE 2023). Information on Malaysia's consistency in leading the halal ecosystem can be found in the table below.

framework in supply chain management that ensures products adhere to halal principles from upstream to downstream. These principles extend beyond food to include all processes, such as production, packaging, distribution, and sales, which are in line with Islamic standards. According to Rusydiana et al. (2023), effective halal value chain management requires robust certification throughout the supply chain to guarantee the halal status of products until they reach the consumer. In addition, the application of digital technology in the halal value chain has become one of the important elements in improving efficiency and transparency. Choudhury et al. (2021) highlight that technologies such as blockchain and the Internet of Things (IoT) enable better tracking of halal products, which helps to avoid potential contamination and ensures that products remain compliant with halal standards.

Sustainability in the halal value chain has become a major concern in recent years. Rejeb et al. (2021) explain that sustainability practices in the halal value chain must address environmental, social, and economic aspects. By adopting triple-bottom-line practices, companies can ensure that halal products not only fulfill religious standards but also contribute to sustainable development.

Research on the halal value chain continues to grow, especially in terms of risk management and certification standards, as well as halal certification (Alfarizi 2024). According to Hanoum et al. (2023), the implementation of stricter halal standards and better risk management throughout the supply chain will help maintain halal integrity, especially in sectors beyond food, such as pharmaceuticals and cosmetics. In the UAE market, Alfarizi (2024) emphasizes the importance of labeling on halal certification in halal food supply chains, which is crucial not only for compliance but also for establishing a competitive advantage in the food and beverage industry.

2.2. Halal Ecosystem

The halal value chain is an important concept in today's business world, especially for companies that want to target the Muslim market. By implementing the halal value chain, companies can not only increase profits but also contribute to the development of the Islamic economy and community welfare. HVC upholds Islamic values in every stage of business. These values then guide business actors in their operations, especially in each main component of their business. The values underlying HVC operations include honesty, responsibility, cooperation, innovation, and goodwill.

The implementation of halal standards is also closely linked to sustainability. Several studies highlight that responsible halal production can support sustainable practices in the supply chain. Halal, as a standard that governs not only religious but also ethical aspects, has

encouraged many companies to implement practices that take into account animal welfare, environmental sustainability, and social welfare (Khan et al., 2022). Therefore, the halal ecosystem not only creates safe and Sharia-compliant products but also contributes to global sustainable development goals.

Although the halal ecosystem has grown rapidly, there are still challenges in harmonizing global standards. Many countries have different halal regulations and standards, which often lead to mismatches in the global supply chain. Some studies propose the need for harmonization of halal standards to facilitate international trade and ensure consistency of product quality across the world (Ismaeel & Blaim, 2012). In this regard, the role of organizations such as JAKIM in Malaysia and international halal bodies is crucial in building consumer confidence and strengthening the integrity of the halal market.

Amidst the rapid growth of the halal ecosystem, innovation is one of the key drivers. Many companies are now investing in research and development to create innovative products that not only meet halal standards but are also environmentally friendly and meet the needs of increasingly discerning consumers. This aligns with the global trend towards more responsible and sustainable consumption (Rezai et al., 2020).

The development of the halal ecosystem not only reflects the growing demands of the Muslim market but also responds to the needs of global consumers for more ethical, sustainable, and socially responsible products. This ecosystem offers opportunities for both Muslim and non-Muslim countries to participate in an increasingly inclusive and dynamic global economy. With the right regulatory support, the halal ecosystem can continue to grow into a larger and more influential sector in the world economy (Utomo et al., 2021; Haleem et al., 2021).

The halal ecosystem has a significant impact on national economic growth in various countries. One of the key impacts is the rise of the halal logistics sector, which facilitates the flow of halal-compliant goods throughout the supply chain. The implementation of halal logistics not only ensures compliance with Sharia principles but also enhances the competitiveness of companies in the global market. This occurs because halal logistics is perceived as offering added value to consumers, particularly among Muslims who are deeply concerned about the halal status of the products they consume (Haleem et al., 2021; Zailani et al., 2017).

The longevity and continued relevance of these concepts depend on the consistent integration of sustainability principles. A sustainable halal ecosystem refers to the management of the halal ecosystem in a way that balances compliance with Shariah principles and the implementation of environmentally, socially, and economically sustainable practices. In this ecosystem, all processes related to the

production, distribution, and consumption of goods and services adhere to halal principles while promoting long-term sustainability. This concept is rooted in Islamic ethical values that emphasize the welfare of both the environment and society (Khan et al., 2022; Haleem et al., 2021).

One of the key pillars of the sustainable halal ecosystem is Halal Supply Chain Management (HSCM), which ensures that halal products are processed and delivered in compliance with both Sharia and sustainability principles. HSCM involves the physical separation of halal and non-halal products, as well as the use of environmentally friendly logistics. This approach not only preserves the integrity of halal products but also reduces the negative impact on the environment, supporting sustainable development (Haleem et al., 2021; Ngah et al., 2019).

This concept also includes the use of Islamic financial instruments to promote the sustainable growth of the halal ecosystem. Islamic green finance, such as green sukuk, is used to fund projects that support sustainability, including renewable energy, organic agriculture, and water resource management. These financial tools enable a more inclusive and environmentally friendly economy in line with Islamic values (Napitupulu et al., 2024; Khan et al., 2022).

Additionally, halal certification plays a crucial role in supporting the sustainability of this ecosystem. Certification not only ensures the halal status of products from a sharia perspective but also guarantees that the products are produced using environmentally friendly and ethical methods. Strict halal certification ensures high-quality standards and efficient production, which helps reduce waste and minimize environmental impact (Ngah et al., 2019; Zailani et al., 2017).

The sustainable halal ecosystem also embraces technological innovations to ensure transparency and sustainability throughout the entire supply chain. The use of technologies such as blockchain enables product traceability from source to consumer, supporting halal integrity and process transparency. This builds consumer trust and ensures that every stage of production and distribution meets both halal and sustainability standards (Khan et al., 2022; Haleem et al., 2021).

3. Method

Respondents in this study were selected through purposive sampling, with consideration given to their understanding of the halal value chain. The respondents included practitioners, experts, and academics with competence in Islamic finance, the Islamic industry, the halal value chain, the halal supply chain, government representation, and halal-based industries or businesses.

This research was conducted in Malaysia, specifically in key halal ecosystem areas, including halal food centers,

halal fashion, halal transportation, Islamic finance, and academic institutions such as INCIEF, Universiti Kebangsaan Malaysia, and INHART at the International Islamic University Malaysia. Experts from these institutions participated in the focus group discussions (FGD). This study employs a qualitative-quantitative analysis approach aimed at developing a halal value chain model within the halal ecosystem in Malaysia.

The data used in this study are comprised of both primary and secondary sources. Primary data were collected through in-depth interviews with individuals who possess a deep understanding of the discussed issues and have direct involvement in the halal value chain. The administration of a questionnaire for further data collection followed this. Additionally, data were gathered through observation, involving detailed examination and exploration of the subjects and objects under study.

The Analytic Network Process (ANP) questionnaire was designed as a pairwise comparison between elements within clusters to determine the relative influence and significance of each element. A numerical scale from 1 to 9 was used to translate verbal judgments into quantifiable data.

The data obtained from the research will be analyzed using the Analytical Network Process (ANP) method, which is applicable to a variety of qualitative studies, including decision-making, forecasting, evaluation, mapping, strategizing, and resource allocation.

ANP is a mathematical theory that systematically handles dependencies and feedback by capturing and combining both tangible and intangible factors. The use of the ANP method spans various fields, as noted by Sipahi and Timor (2010), Lee (2010), and Ho (2008).

This study follows three main stages: model development, model quantification, and data analysis. The ANP model was developed based on a thorough review of the theoretical and empirical literature, as well as consultations with experts and practitioners through in-depth interviews and Focus Group Discussions (FGDs) to gain deeper insights. The model quantification involved using the ANP questionnaire, which presents pairwise comparisons between elements within clusters to determine which halal value chain model exerts a greater influence (i.e., which is more dominant) and the magnitude of the difference, using a numerical scale from 1 to 9. Data analysis is conducted in two phases: geometric mean calculation and rater agreement.

Geometric mean calculations are used to aggregate individual assessments from respondents and derive group consensus. The pairwise comparison responses are combined to form a consensus through this calculation method, which highlights trends or central values. Rater agreement measures the level of consensus among respondents (R_1 – R_n) on a particular issue within a cluster. Kendall's Coefficient of Concordance (W ; $0 < W \leq 1$) is used

to assess rater agreement. A value of $W = 1$ indicates perfect agreement. To calculate Kendall's W , each response is ranked and then summed.

One of the debates surrounding the application of ANP pertains to the sample size required for robust analysis. While large samples are generally preferred for their statistical power and ability to enhance generalizability, there are contexts where smaller samples are not only sufficient but also more appropriate. This is particularly true in expert-based studies, where the depth and quality of input can far outweigh the quantity of participants.

In expert-based research, the expertise and specialized knowledge of participants play a pivotal role in the validity and relevance of the insights generated. ANP's reliance on expert judgment to construct and analyze decision networks makes it particularly suited for contexts where deep, specialized knowledge is essential. A focused group of well-selected experts can provide the nuanced understanding necessary for complex decision-making, ensuring that the resulting analysis is both accurate and meaningful.

Moreover, ANP's structured approach to decision-making allows for rigorous analysis even with smaller samples. By decomposing complex systems into their constituent elements and carefully mapping their interactions, ANP can uncover priorities and dependencies that might not be evident through larger, more diffuse samples. This structured decomposition compensates for the limited sample size by ensuring that each piece of expert input is thoroughly examined and integrated into the decision model.

However, the justification for small sample sizes in ANP studies must be accompanied by careful methodological rigor. Researchers must ensure that the selection of experts is based on clear criteria, guaranteeing that participants possess the necessary expertise and experience. Additionally, transparency in the analytical process is crucial, with clear documentation of how expert inputs are utilized and integrated into the decision framework.

The effectiveness of ANP with small samples is also supported by existing literature. For instance, studies have demonstrated the robustness of ANP in expert-based decision-making contexts, even with limited sample sizes. These studies highlight that the quality of expert input, coupled with the methodological rigor of ANP, can yield reliable and valid results (Saaty & Vargas, 2012; Mardani et al., 2017; Sarkis & Talluri, 2004).

In conclusion, while large samples are typically advantageous in research for enhancing statistical power and generalizability, the specific context of expert-based ANP studies often justifies the use of smaller samples. The critical factor lies not in the quantity of participants but in the quality of their expertise and the methodological rigor of the analysis. By carefully selecting experts and meticulously

applying ANP's structured framework, researchers can harness the power of expert knowledge to make informed, robust decisions, even with limited sample sizes.

4. Results and Discussion

4.1. History and Development of the Halal Ecosystem in Malaysia

Based on interviews with several halal industry experts in Malaysia, the origin of the halal industry in the country stems from the domestic needs of the majority Muslim population to obtain products that comply with Shariah principles. In the late 1970s, the Malaysian government began to realize the importance of halal certification to protect Muslim consumers. As a result, Jabatan Kemajuan Islam Malaysia (JAKIM) was established to oversee and provide halal certification for marketed products, both domestically and internationally (Jaswir et al., 2023).

An expert from Universiti Teknologi Malaysia mentioned that initially, halal certification was limited to food products. Still, with growing consumer awareness and globalization, the scope of certification has expanded to include other sectors such as cosmetics, pharmaceuticals, and even services like halal tourism. According to him, this development was also driven by government policies that support halal sectors through incentives and regulations, encouraging companies to participate in the halal ecosystem.

An expert from the International Institute for Halal Research and Training (INHART) added that the Malaysian government's push to position the country as a global halal center was a strategic initiative launched in the early 2000s. This is evident in the introduction of the Halal Industry Master Plan (HIMP) and initiatives such as the Malaysia International Halal Showcase (MIHAS). Another expert noted that global demand for halal products is rising in line with the increasing Muslim population and heightened consumer awareness of the importance of halal products. Malaysia, with its internationally recognized halal standards, sees significant opportunities to export halal products to Muslim-majority countries, particularly in the Middle East and Southeast Asia. This expert also emphasized the importance of JAKIM's halal certification, which has gained wide recognition in global markets.

The development of the halal industry ecosystem in Malaysia has experienced substantial growth in recent decades, aligning with the country's ambition to become a global halal hub. Malaysia leverages its position as a Muslim-majority country, along with strong government policy support, to foster the growth of the halal industry across various sectors, including food, pharmaceuticals, cosmetics, and tourism (Jaswir et al., 2023). Government

support, through policies such as strict halal certification, has helped solidify Malaysia's reputation as a leading global exporter of halal products (Khan et al., 2022).

The Malaysian government has taken significant steps to strengthen the halal ecosystem by encouraging local companies to obtain halal certification and capitalize on both domestic and international market opportunities. Programs such as *Jelajah Halal Malaysia* (JHM) have helped more than 1,800 SMEs access local and global halal markets, further expanding the reach of Malaysian halal products. This progress has not only reinforced Malaysia's position as a leader in the global halal industry but also contributed to the growth of halal product exports (Zafrul, 2024).

The Malaysian government provides robust support for the development of the halal industry through various strategic policies and incentives. One key initiative is the establishment of specialized institutions like *Jabatan Kemajuan Islam Malaysia* (JAKIM), which plays a pivotal role in halal certification and oversight of the halal industry. JAKIM's halal certification is internationally recognized, boosting consumer confidence and enhancing the competitiveness of Malaysian products in global markets (Jaswir et al., 2023). With standards such as MS1500 in place, the government ensures that all halal products meet Shariah requirements and ethical production standards (Ab Talib & Ai Chin, 2018).

4.2. Halal Industry in Malaysia

According to a report by the Halal Development Corporation (HDC), Malaysia's overall halal industry, including the culinary sector, is projected to reach a value of RM55 billion by 2023, with halal culinary contributing a significant portion to the export figure. The popularity of halal tourism drives the growth of Malaysia's halal culinary industry. According to Tourism Malaysia, the number of Muslim tourists visiting the country increased by 4.8% in 2019, prior to the pandemic, with many choosing Malaysia as their primary destination due to the ease of access to halal food. This trend strengthens the position of the halal culinary industry as a crucial element in boosting revenue from the tourism sector.

Malaysia's halal food industry has also shown significant growth on the international stage. According to HDC's report, Malaysia's halal food product exports will reach RM22.5 billion by 2022, with steady growth in key markets such as China, Singapore, and Indonesia. The halal food industry lies at the core of the halal ecosystem, fulfilling the needs of consumers both domestically and globally by ensuring that all products are produced, processed, and consumed in accordance with Shariah principles. The quality of halal products, commonly known as Halalan Thoyyiban, is the reason consumers use halal products

because there are guarantees of cleanliness, safety, and product quality for the entire production chain (Anggara et al., 2024). These halal food products supply halal restaurants and halal hotels and are a major attraction in the halal tourism sector. Additionally, they are distributed through halal supply chains that utilize halal transportation to ensure that the halal integrity of the products is maintained throughout the distribution process.

As a leading halal tourism destination, Malaysia offers a wide range of services tailored to the needs of Muslim travelers. According to the Global Muslim Travel Index (GMTI) report, Malaysia has ranked first as a global halal tourism destination for several years, including 2022. In 2019, before the COVID-19 pandemic, Malaysia recorded over 5.3 million international Muslim travelers, representing approximately 23.6% of the total international tourist arrivals in the country. The halal tourism industry is projected to continue growing as the global Muslim population increases, with significant contributions from sectors such as halal food, halal hotels, and halal transportation.

Halal transportation ensures that halal products, including food, cosmetics, and pharmaceuticals, are distributed in accordance with Shariah principles from the place of production to the hands of consumers. This involves a logistics system that guarantees halal products are not mixed with non-halal products during delivery. According to a report from the Halal Development Corporation (HDC), the halal logistics and transport sector made a significant contribution to the growth of Malaysia's halal industry, accounting for RM3.6 billion of the country's total halal product exports by 2022.

The development of halal transport in Malaysia is driven by the increasing demand for halal product distribution, both domestically and internationally. A report released by HDC in 2021 noted that the halal logistics sector experienced an annual growth rate of about 6%, in line with Malaysia's rising halal product exports to countries such as China, the Middle East, and Europe. Halal logistics facilities at Malaysia's major ports, including Port Klang, have been optimized to facilitate the export of halal products in compliance with strict halal protocols. Furthermore, transport companies like MASKargo and DHL Global Forwarding have invested in halal logistics solutions to support the international distribution of Malaysian halal products. The close relationship between the halal transport industry and other halal sectors, such as halal food, pharmaceuticals, and tourism, is a key factor in the growth of Malaysia's halal ecosystem.

Halal fashion encompasses clothing produced without the use of prohibited materials, such as pig skin or products from animals not slaughtered in accordance with Shariah law. According to the State of the Global Islamic Economy 2022 report, the global market value of halal fashion was expected to reach USD 361 billion by 2021, with Malaysia

making a significant contribution to this figure, particularly through the growth of modest wear aimed at Muslim women.

The growth of the halal fashion industry in Malaysia is fueled by the trend of modest fashion, or Shariah-compliant clothing, which is gaining popularity not only among the local Muslim community but also internationally. Malaysia hosts Malaysia Fashion Week, which showcases both local and international designers, many of whom focus on halal and modest wear. In 2022, the fashion sector in Malaysia recorded a 7% increase in modest wear sales over the previous year, driven by the success of local brands like Naelofar and dUcK, which have expanded their reach into global markets, including the Middle East and Europe.

Halal pharmaceutical products include medicines, supplements, and cosmetics that are free from prohibited ingredients such as alcohol or gelatin from non-halal sources. According to HDC data, by 2021, the halal pharmaceutical sector accounted for approximately RM3.1 billion of Malaysia's halal product exports, with an annual growth rate of about 6%. The development of the halal pharmaceutical industry in Malaysia is supported by government initiatives and certification bodies like Jabatan Kemajuan Islam Malaysia (JAKIM). Certification by JAKIM provides consumers with confidence that the products they are using are Shariah-compliant. In 2020, Malaysia recorded a significant increase in halal pharmaceutical exports, particularly to countries such as Indonesia, Brunei, and several nations in the Middle East.

By 2023, Malaysia will continue to strengthen its position as a key destination for global halal tourism. According to HDC data, the halal tourism and hospitality sector in Malaysia is expected to grow by 5.4% by 2023. Halal hotels provide services and accommodations that comply with Shariah principles, including the provision of halal food, worship facilities, and Muslim-friendly services. These hotels collaborate closely with halal restaurants to ensure halal food offerings for their guests. Additionally, halal hotels support halal tourism by offering accommodations specifically designed for Muslim travelers. Halal pharmaceutical products and halal fashion are also commonly featured as part of the services provided in halal hotels. In addition to the increase in the number of halal hotels, Malaysia is also experiencing a diversification of services within this sector. By 2023, more than 200 hotels in Malaysia had obtained halal certification.

4.3. Halal Ecosystem and Halal Value Chain

The main findings of this study highlight the key strategic priority indicators identified by experts, which include strengthening the value chain ecosystem, bolstering the domestic market, enhancing institutional effectiveness, and, lastly, diversifying products. Strengthening the value

chain ecosystem is critical in building consumer trust in the products produced, which is crucial in the halal industry. By ensuring that the entire supply chain adheres to halal principles, consumers can be confident that the products they purchase comply with Islamic law (Muis et al., 2023). Moreover, a robust halal value chain ecosystem can enhance the competitiveness of the halal industry. The halal supply chain has now become a new business model gaining global attention, and strengthening this ecosystem can help attract more players to the industry, including food industry actors, cosmetic and pharmaceutical companies, and even academics and researchers (Antonio et al., 2020).

From a Customer perspective, Consumer trust in halal food products is strongly influenced by the integrity and transparency of the supply chain. When consumers perceive that the supply chain is well-managed and adheres to halal practices, their trust in the products increases (Alfarizi, 2022). Additionally, there is a positive correlation between effective halal food supply chain practices and consumer satisfaction. When consumers have confidence in both the halal certification and the supply chain processes, their overall satisfaction with the food products improves.

Antonio et al. (2020) also explained that the halal supply chain is closely related to food products, and strengthening the ecosystem can help address issues related to halal food integrity, such as ingredients, hygiene, safety, health, nutrition, and quality. This becomes especially important in the era of modernization, where the utilization of technology can support the halal supply chain, reduce operational costs, minimize lost sales opportunities, and optimize inventory needs. Strengthening the halal value chain ecosystem can also help the halal industry develop and thrive in the era of Society 5.0. A notable finding in Qizam's (2024) study is that the implementation of HVC has a significant impact on an entrepreneur's attitude. This includes sectors such as the food and beverage industry, stakeholders like the government, consumers, industry players, and investors, as well as leveraging technology to support the halal supply chain (Asri & Ilyas, 2022).

Several strategies can be implemented to strengthen the halal value chain ecosystem. Noordin et al. (2014) emphasized the importance of halal certification systems. Alfarizi (2022) further emphasizes that halal certification plays a crucial role for consumers, acting as a tool that enables informed purchasing decisions. It serves as a seal of approval for food quality, which is particularly significant as consumers often cannot directly verify halal compliance before, during, or after consumption. The implementation of strategic approaches such as halal certification systems in halal quality management can help address operational challenges in the halal value chain. Moreover, implementing Supply Chain Management (SCM) strategies as a component of competitive strategy can also enhance the

halal market, particularly halal food (Noordin et al., 2014). Additionally, several key components need to be considered in strengthening the halal value chain ecosystem, including financing, which relates to securing financial resources to support the development and growth of halal businesses and industries; production processes, which involve ensuring that all stages of production, from raw materials to finished products, comply with halal standards and principles; and logistics, which covers the smooth transportation, storage, and distribution of halal products from production to consumption points (Muis et al., 2023).

In the institutional effectiveness sub-cluster, the primary priority is incentive programs for businesses. Incentive programs for business actors are crucial for institutional effectiveness, especially in the halal food industry, as they can encourage more entrepreneurs to engage in halal food production. Additionally, business actors will be more motivated to obtain halal certification, adhere to established guidelines, and improve the quality of their products, which, in turn, helps ensure that the products are safe, healthy, and meet the highest quality standards—a critical factor in consumer trust and loyalty (Ab Talib, 2017). Incentives can also help boost the overall competitiveness of the halal food industry by encouraging innovation, improving efficiency, and expanding markets, particularly by providing financial or regulatory support for businesses investing in new processes, technologies, or products. This can help businesses remain competitive and adapt to changing market conditions, which is essential for the industry's growth and development (Ab Talib, 2017).

Furthermore, the diverse product sub-cluster prioritizes the standardization of international halal food quality standards. Standardization ensures that halal food products meet the same quality and safety standards, regardless of where they are produced or sold. This consistency is crucial for maintaining consumer trust and confidence in the halal food industry. Ali et al. (2021) expressed a similar view, stating that standardization helps maintain food quality consistency, ensures food is safe and healthy for consumption, and can help prevent food scandals while maintaining the integrity of the halal food supply chain. Moreover, the halal food industry is growing rapidly, and standardization helps create a global market for halal products. It also promotes the culture of halal and Tayyib food both nationally and internationally (Naji et al., 2018).

The integration of Shariah microfinance institutions in Malaysia within the halal industry ecosystem is realized through their strategic role in supporting the development of micro, small, and medium-sized halal enterprises (MSMEs). These institutions provide Shariah-compliant financing options, such as Murabaha or ijarah contracts, which assist halal MSMEs in meeting capital needs without violating Shariah principles. Furthermore, Shariah microfinance

institutions often collaborate with other sectors, such as the halal food, halal tourism, and halal fashion industries, to strengthen the overall halal value chain. For instance, the financing provided can support halal certification, the procurement of halal raw materials, or the distribution of products through halal e-commerce channels. This collaboration not only enhances the competitiveness of halal MSMEs but also fosters the growth of an inclusive and sustainable halal ecosystem in Malaysia.

Halal food catalyzes shaping a cohesive halal ecosystem, synergizing with various industries to establish a holistic framework. Distribution occurs through halal-certified channels, including supermarkets, minimarkets, and e-commerce platforms, ensuring the preservation of halal standards across the supply chain while simultaneously promoting local halal MSME products. Halal hotels collaborate by offering menus sourced from local halal suppliers and catering services for events such as weddings and conferences. In halal tourism, restaurants are elevated as culinary destinations, supported by halal food maps tailored for travelers. The halal supply chain is reinforced through certified halal logistics systems. Joint promotional efforts, such as the inclusion of halal food at cosmetic launches or the fusion of culinary and halal fashion events, further exemplify cross-sector collaboration. Halal catering remains an essential component of travel packages curated by halal tour operators. In contrast, the presence of halal restaurants is increasingly prominent in Sharia-compliant housing complexes and Islamic communities. Collectively, these efforts foster a robust halal ecosystem that seamlessly supports a contemporary Muslim lifestyle.

Halal hotels serve as key partners in travel packages by offering Muslim-friendly facilities, such as prayer spaces, separate swimming pools, and halal food. Halal hotels use halal catering services to meet operational needs, even for large events. Collaboration with the halal cosmetics industry is reflected in the use of halal-certified room amenities, such as soap, shampoo, and lotion. Additionally, halal hotels support halal fashion by providing modest clothing, such as prayer garments and sarongs, for guests who require them. In terms of transportation services, halal hotels offer vehicles that comply with Sharia principles to ensure guests' comfort. Their partnership with halal travel agencies makes it easier for tourists to plan trips aligned with Islamic values. Strategically, many halal hotels are built in halal property areas or near Islamic tourist destinations, creating an environment that comprehensively supports a halal lifestyle.

Malaysia's halal fashion industry demonstrates a strong synergy with other halal industries, developing a unified ecosystem. Halal retailing distributes halal apparel through brick-and-mortar stores and halal e-commerce platforms, such as limited-edition collections marketed at halal retail expos. The synergy between halal tourism and halal fashion

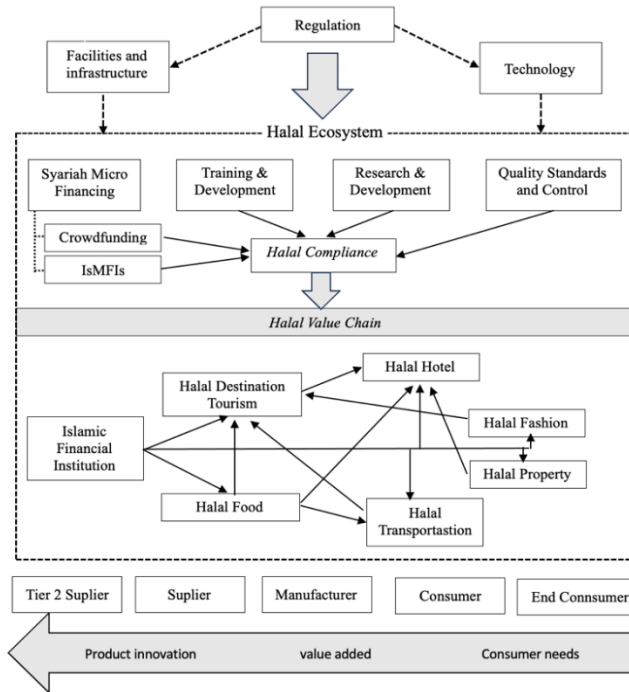


Figure 3: Integrated Halal Ecosystem

is evident in the commoditization of traditional local dress as a local tourist attraction and the availability of modest swimsuits in halal beach resorts. Halal hotels promote halal fashion through modest clothing facilities, such as prayer attire and sarongs, for their guests. Halal transport logistics services are employed to ensure that the distribution of halal clothing is Sharia-compliant. Synergy with halal cosmetics is manifested in halal beauty campaigns coupled with modest fashion. In halal tours and travel, the traditional regional dress is typically offered as exclusive merchandise in halal travel packages. Halal boutiques are also being set up in halal properties. Sharia-compliant malls or integrated communities make them more accessible to Muslim consumers. This synergy strengthens the position of halal fashion within Malaysia's halal industry ecosystem. The communication framework of Malaysia's halal industry constructs the halal value chain and progressively evolves into an integrated halal ecosystem.

4.4. Reconstruction of Islamic Values in the Halal Value Chain Ecosystem.

The research develops a Halal Value Chain Index (HVCI) model based on criteria established by Chapra (2008), later reclassified by Bedoui (2012), and subsequently regrouped. The Analytical Network Process (ANP) method is applied to determine the weight of each of the five objectives, as well as the weight of each of the 30 criteria or dimensions. Content analysis, based on Sekaran's approach, is then used

to identify the elements, ratios, and data required, reducing the 30 criteria to 20 ratios (4 ratios for each objective). Several steps are involved in determining the weighted objectives and criteria using ANP. The first step is to descriptively analyze the 30 criteria into five halal value chain categories. Since the ANP requires mutually exclusive elements and clusters, the conceptual framework consists of five halal value chain clusters, each with eight dimensions derived from Chapra's 42 criteria (2008).

Islamic values are defined as a set of moral principles that distinguish right from wrong. These values illustrate their universality and applicability in all situations and societies. Therefore, every action must be accompanied by a sincere intention (niyah) to seek God's pleasure, which is considered an act of worship (Ibadah) in Islam. A narration from Bukhari and Muslims supports this: *"Indeed, actions are judged by intentions, and each person will receive what they intended. Whoever migrates for Allah and His Messenger, their migration is for Allah and His Messenger. But whoever migrates for worldly gain or to marry a woman, their migration will be for what they sought."*

Islamic values play a crucial role and have a significant impact on all aspects of society. In the early seventh century, God revealed Islam through the Prophet Muhammad (peace be upon him), meaning "submission" or "surrender to the will of God." A deep understanding of knowledge and faith concerning Islamic issues and priorities contained in the Qur'an forms the Islamic values that Muslims must practice. It is widely recognized that the fundamental quality of work in Islam is based on the values of servitude and vicegerency (Khalifah), which are harmoniously integrated. Moreover, religious aspects bring people together to understand specific values and cultures that have a significant impact.

Within the Islamic framework, corporate behavior must be guided by Islamic values and ethics, as this is what distinguishes an Islamic corporation. Furthermore, the Islamic perspective expands the definition of organizational sustainability by incorporating Islamic values, providing legitimacy to organizations, and integrating them with socially constructed values. In this framework, economic agents are assumed to be guided by Islamic values. Thus, a Muslim producer, accountable to God, treats the resources they possess as a trust (amanah) and views the production of goods as an obligation, basing their production decisions on the concept of maslahah (public interest). Although they may still be profit-oriented, their economic cost assessments are modified because Shariah governs them. Therefore, the Islamic value system is definitive and unchanging regardless of time, place, or culture. If something is considered wrong, it will never be right in the future. Specifically, the Islamic value system is a set of preferred values derived from Shariah, which defines faith (Iman) and piety (taqwa) as the foundation that guides Muslims toward the right path in the

right way. The following are the Islamic values that will be discussed further:

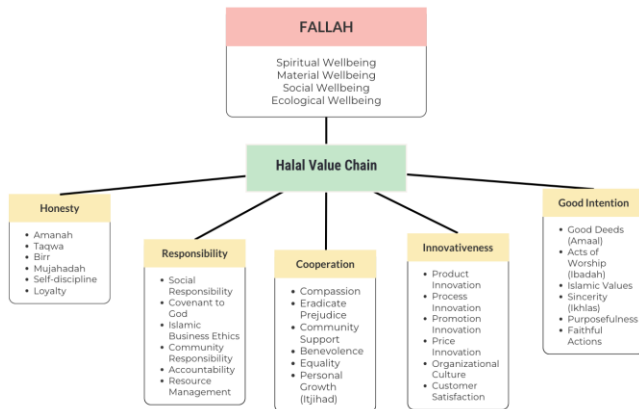


Figure 4: Analytic Network Process (ANP) Network

Based on the conceptual framework, the corresponding Analytic Network Process (ANP) network is illustrated in Figure 4. There are five clusters associated with each Shari’ah objective, as well as one cluster dedicated to Falah and one for the Halal Value Chain. All clusters and their elements are interconnected and interdependent, thereby forming a circular cause-and-effect relationship that resembles the IIE (interactive, integrative, and evolutionary) process-oriented circular cause-and-effect model proposed by Choudhury and Hoque (2004).

4.5. Analytic Network Process Result

The overall ANP results from all respondents (geometric mean of fifteen participants, including experts, academics, practitioners, and regulators) indicate that the most significant

aspects of Falah are 1) Spiritual Well-being (31.71%) and 2) Social Well-being (26.43%). Material Well-being ranks third, with 24.26%, and ecological well-being with 17.6% (refer to Figure 4.2, on the right). Furthermore, the most critical values within the Halal Value Chain are 1) Maintaining Honesty (23.43%) and 2) Maintaining Responsibility (22.79%). Notably, Maintaining Innovation (18.63%) ranks third, followed by Maintaining Good Intention (18.15%) and Maintaining Cooperation (17.00%). Please refer to Figure 5 on the left.

The Analytic Network Process (ANP) represents a novel approach within qualitative methodologies, characterized by its non-parametric and non-Bayesian nature. ANP offers a comprehensive framework for addressing decisions without requiring assumptions regarding the independence of elements at higher hierarchical levels from those at lower levels or the independence of elements within the same level. Notably, ANP employs networks without assigning hierarchical structures, as is customary in the Analytic Hierarchy Process (AHP). Since ANP serves as both an enhancement and generalization of AHP, the latter becomes a specific instance of ANP when the network is hierarchical.

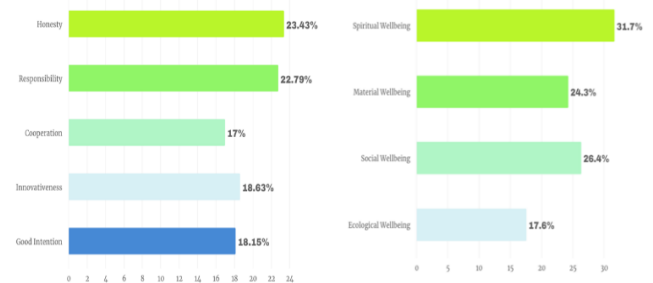
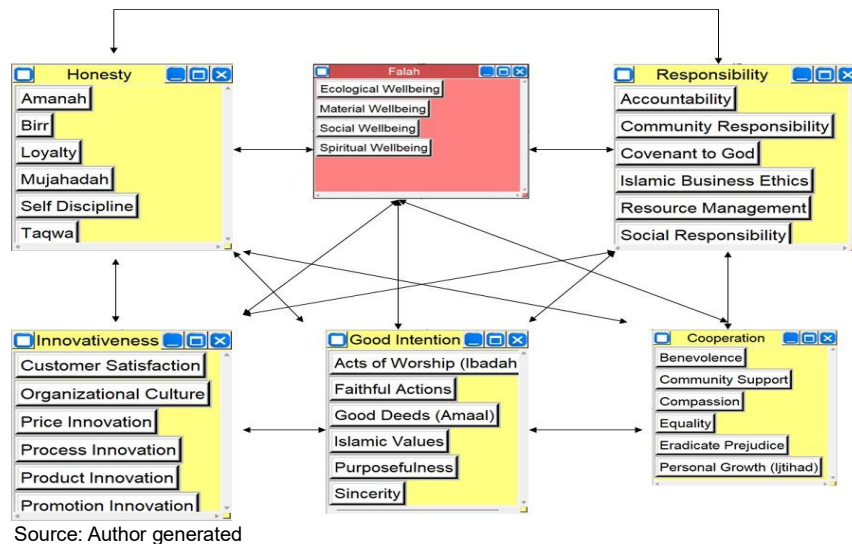


Figure 5: General results of Falah (right) and Halal Value Chain (left).



Source: Author generated

Figure 6: ANP Network Halal Value Chain

A principal advantage of ANP over alternative methodologies is its ability to synthesize diverse factors within a hierarchy or network. No other method possesses a synthesis capability comparable to that of ANP. Additionally, its inherent simplicity makes ANP applicable to a wide range of qualitative inquiries, including decision-making processes, forecasting, and resource allocation.

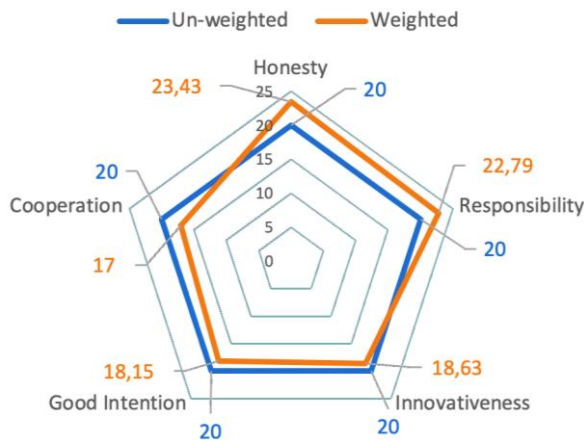


Figure 7: Weighted and Unweighted Halal Value Chain Pentagon

ANP is delineated through three fundamental steps. The first step involves the description or analysis of the problem with the aim of structuring its complexity. The second step

entails establishing comparative values to be incorporated within the scale ratio. The third step consists of synthesis, where all previously disaggregated and measured components are amalgamated into a singular value.

Based on the results of the five core values of the Halal Value Chain (HVC) shown in Figure 5 (left), the weighted HVC pentagon can be depicted as seen in Figure 7. In comparison to the unweighted MS pentagon, the weighted MS pentagon leans toward upholding Honesty (23.43) and Responsibility (22.79).

The complete dimensions of the Halal Value Chain are shown in Table 1. This figure can be used as a guide to select specific elements of the Halal Value Chain according to detailed requirements. However, this study is limited to a 6 x 5 dimension (six dimensions for each of the five objectives) due to the availability of observable data. As previously mentioned, this study adopts the Bedoui method (2012) to construct the Halal Value Chain values. In the Bedouin Pentagon method, the weights assigned to Islamic banks are based on four dimensions selected from the six available dimensions of the Halal Value Chain. In accordance with the general ANP results shown in Figure 5 (right), the weights of the Halal Value Chain values are as follows: 1) Honesty 23.43%; 2) Responsibility 22.79%; 3) Innovation 18.15%; 4) Goodwill 17.00%; and 5) Cooperation 18.63%.

Honesty		Responsibility		Innovativeness		Good Intention		Cooperation	
Dimension	WP	Dimension	WP	Dimension	WP	Dimension	WP	Dimension	WP
Amanah	2,91	Accountability	2,88	Customer Satisfaction	3,15	Acts of Worship (Ibadah)	2,8	Compassion	3,23
Loyalty	2,91	Islamic Business Ethics	2,81	Organizational Culture	2,65	Purposefulness	2,66	Benevolence	2,68
Taqwa	2,67	Resource Management	2,79	Product Innovation	2,58	Islamic Values	2,61	Community Support	2,59
Self Discipline	2,54	Community Responsibility	2,72	Promotion Innovation	2,49	Faithful Actions	2,43	Eradicate Prejudice	2,49
Biir	2,49	Covenant to God	2,42	Price Innovation	2,45	Good Deeds (Amaal)	2,38	Equality	2,12
Mujahadah	2,48	Social Responsibility	2,35	Process Innovation	2,25	Sincerity	2,3	Personal Growth (Ijtihad)	2,09

Table 1: The Complete Dimensions of the Halal Value Chain

5. Conclusion and Recommendation

5.1. Conclusion

Early history and development of the halal ecosystem in Malaysia began in the 1970s with a focus on domestic needs for sharia-compliant products. Over time, the scope of halal certification expanded to other sectors, such as cosmetics, pharmaceuticals, and tourism. Market needs, including both Muslim and non-Muslim consumers, support the halal industry. The Malaysian government is committed to maintaining the halal ecosystem through halal value chain management. One of the government's concrete steps is to provide incentives in the form of tax exemptions, subsidies, and financial support through Islamic financial institutions. There is strong interaction and close interconnection

between the halal industries in Malaysia. The interaction between these industries forms the halal ecosystem in Malaysia. Strengthening the spirit of the Halal Value Chain (HVC) is based on Islamic indicators of HVC. The results of the ANP, as a geometric average of fifteen respondents, showed that the values in the formation of the Halal Value Chain ecosystem are: 1) Maintaining Honesty (23.43%) and 2) Maintaining Responsibility (22.79%). Surprisingly, Maintaining Innovation (18.63%) came in third, followed by Maintaining Goodwill (18.15%) and Maintaining Collaboration (17.00%).

5.2. Recommendation

Given the increasing interest of non-Muslim consumers in halal products due to their quality, safety, and hygiene,

further research can focus on how halal certification affects the perception and trust of non-Muslim consumers. This study can help better understand which aspects appeal to non-Muslim consumers and how to strengthen halal branding in the global market. Although research has shown that Malaysian government policies play a major role in supporting the development of the halal ecosystem, further studies are needed on the long-term effectiveness of these policies on the sustainability of the ecosystem. Are the incentives and subsidies provided truly sustainable? How do they impact SMEs in the long term?

With the rapid development of technology, a deeper study of how the halal supply chain can be optimized through digital technology would be beneficial. This includes the use of blockchain technology to ensure transparency and compliance with halal standards throughout the supply chain. Comparative research can be conducted to examine how the implementation of halal standards in Malaysia compares to other countries such as Indonesia, Saudi Arabia, and Western nations that are beginning to adopt halal standards. The focus is on how each country responds to the challenges of globalization and internationally recognized halal certification. Further research can explore the potential for sustainable halal tourism development, particularly how halal tourism destinations can integrate sustainability and environmental friendliness without compromising the quality of halal services.

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