

MCDM Application on Indonesia Halal Food Development Strategy

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This study tries to find strategies for the development of the halal food industry in Indonesia with one of the MCDM approaches, namely ANP. Based on the experts' answers, the results show that the biggest weight in the development of halal food in Indonesia is the strategy of strengthening the halal value chain ecosystem (0.33). Next are aspects of strengthening the local market (0.25) and aspects of institutional effectiveness (0.19). Last but not least is the product diversification strategy (0.16). Based on the results of this study, regulators can develop policies that support the establishment of halal centers as part of strengthening the value chain ecosystem. This can be done by providing fiscal incentives, technical assistance, and licensing that facilitate the establishment of halal centers. Then, regulators are expected to further encourage the standardization of domestic halal products by developing policies that facilitate the standardization process, including standard development, certification, and supervision of halal products.

OPEN ACCESS

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Received: 29 April 2024
Accepted: 17 June 2024
Published: 31 July 2024

Citation:
(2024) MCDM Application on
Indonesia Halal Food Development
Strategy.
Islamic Economics Methodology.
3.1.

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Keywords: Strategy; MCDM; Halal Food; ANP; Decision Making

INTRODUCTION

The Halal Lifestyle which is currently booming in the world, not only occurs in countries where the majority of the population is Muslim but also in countries where the majority of the population is non-Muslim. Along with the increase in halal tourism globally, public awareness of the fulfillment of tourism itself has also increased, one of which is halal food. A halal product is an important need for every consumer, especially Muslim consumers.

In the international trade area, the issue of certification and funding for halal products receives important attention. This is done to protect Muslim consumers throughout the world and also as a strategy to face the challenges of globalization. In Indonesia itself, the majority of the population is Muslim, reaching 87.8 percent of the population of 232.5 million people ([Global Islamic Economic Report 2018-2019](#)). Indonesia currently has regulations in Law Number 33 of 2014 concerning Halal Product Guarantees (UUJPH). With this law, it increasingly clarifies the importance of halal-haram issues in the production chain from producers to consumption by consumers. This regulation is also a concrete action that states are responsible for further protecting consumers regarding halal food and drinks.

As a country with majority Muslim, Indonesia is in the top 10 consumers in each sub-sector in the halal industry, with details as following ; 1) Rank first, top Muslim food expenditure; 2) Rank fifth in the top Muslim travel expenditure category; 3) Rank third in the top Muslim apparel expenditure; 4) Rank fifth in the top Muslim media expenditure; 5) Rank sixth on top Muslim pharmaceuticals expenditure. So, in these five industries, Indonesia occupies top 10 positions according to the ranking of the Global Islamic Economy (GIE) index only on the category halal tourism and Muslim fashion ([Sharia Economic Master Plan 2019 – 2024](#)).

The development of the halal food industry in Indonesia requires a supply chain that can depict a map of opportunities and challenges in the industry. In the context of the halal food and beverage industry, the halal value of a product must be maintained, from raw materials to ready-to-consume products. The management chain for implementing halal values is very necessary to guarantee the quality of halal products and services. Product handling must be different and cannot be separated between halal and non-halal. The process must take place from upstream to downstream, so that people can easily differentiate

between the two. With a halal value chain, expectations for quality standards, quality, service for halal products and services become a reality. All processes are integrated starting from input, production, distribution, marketing and consumption.

Existing food products must be guaranteed to be halal starting from the time they are farmed, animal feed, fertilizer and chemicals used must be halal. So the halal value of the product must be maintained permanently when processing raw materials to produce the final product. Then the process and distribution of halal food and beverage products must also be guaranteed in terms of warehousing, packaging, air conditioning and processing. After that, the marketing must show sharia values, starting from being taken to supermarkets, basic necessities until finally reaching consumers in restaurants, hotels and restaurants. These products must not be mixed with non-halal foods. Then, as a form of comprehensive development in maintaining halal values and integrity, financing must use sharia financial principles.

The current development of the sharia industry in Indonesia shows that the majority of sharia-compliant or halal consumer products in Indonesia are still supplied from imported products. This is very unfortunate because as a country whose majority population is Muslim, Indonesia needs to be more optimal in its goal of becoming a halal industry in the world ([Uula, 2023](#); [Rusyadiana, 2023](#)). Indonesia has potential in this regard, starting from halal certification, concern for Muslim-friendly products, services that make it easier for Muslims to practice their beliefs, and so on ([Suhendri & Indra, 2023](#)). With the potential that Indonesia has, a strategy is needed to achieve Indonesia's vision as a leading Islamic economic center in the world, such as strengthening the existence of the halal value chain for halal food.

So, based on these problems, the focus of this research is to look for strategies that can be implemented within the framework of developing halal food in Indonesia. Of course, this study aims to get a clear answer to what has been formulated in the problem above. In the framework of answering the problem formulation and achieving the objectives of this research, this research was conducted using qualitative research using the ANP (Analytical Network Process) method, using primary data sources from relevant experts. ANP is a Multicriteria Decision Making method that is widely applied in various policy-based studies.

METHOD

The Analytic Network Process (ANP) method is a new approach to qualitative methods, which is non-parametric and non-Bayesian, for a decision-making process (Ascarya 2016). The ANP method is one of the important methods in the science of MCDM decision making. Introduced by Prof. Thomas Saaty, a research expert from Pittsburg University, it is intended to replace the Analytic Hierarchy Process (AHP) method.

Analytic Network Process (ANP) is also a mathematical theory that is able to analyze influences with an assumption approach to solving problem forms. This method is used in the form of a solution with consideration of the adjustment of the complexity of the problem in a synthesis decomposition accompanied by a priority scale that produces the greatest priority influence. ANP is able to explain the dependence factor model and its feedback systematically. Decision making in ANP applications is

by considering and validating empirical experience. The network structure used makes this method possible to identify, classify and organize all factors that affect the output or the resulting decision (Saaty 2005; 2001).

ANP is the most comprehensive framework for community, government and corporate decision analysis currently available to decision-makers. ANP allows for both interaction and feedback within clusters of elements and between clusters. The advantage of ANP over other methodologies is the ability to measure and synthesize a number of factors in a hierarchy or network.

In general, the steps of the ANP method are problem decomposition, next is the quantification of the ANP model in the software application. Then the last is the analysis and calculation of the super-matrix weighting along with the calculation of Kendal coefficient and p-value for robustness test. The following is a summary of the research stages in ANP.

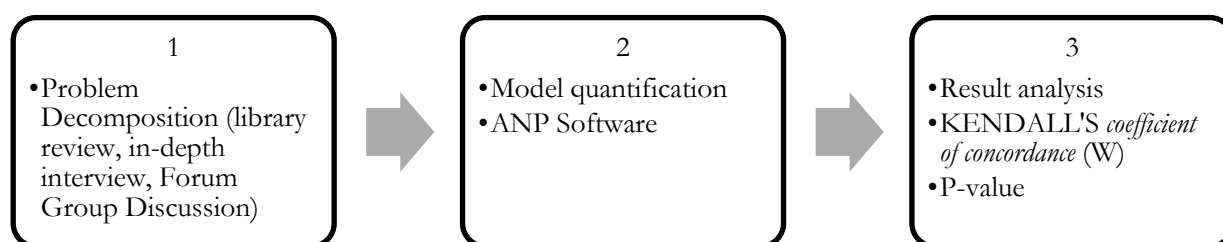
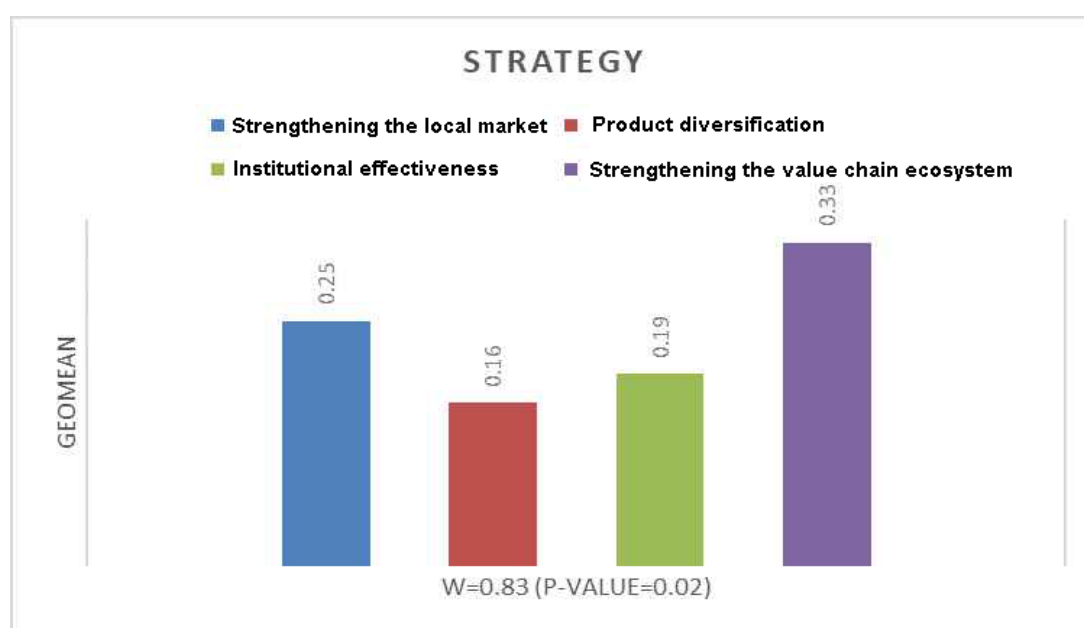


Figure 1. Research process

RESULTS AND DISCUSSION



Source: Processed data, 2022

Figure 2. Weight of Halal food development strategies in Indonesia

In determine the development strategy of Halal food in Indonesia, main indicator according to experts is strengthening value chain ecosystem with average value (0.33), strengthening local market (0.25), institutions effectiveness (0.19), and product diversification (0.16). With score *rater agreement* ($W = 0.83$) and P-value 0.02 means significant and experts agree on development strategy of Halal food in Indonesia.

Based on the sub-cluster of local market strengthening strategies, main indicator according to experts that is domestic product halal standardization with average score (0.39), promotion and halal literacy product as Muslim lifestyle (0.30), and the last one halal certification of MSME products (0.25) with score agreement ($W=0.70$) and P-value 0.06 means **significant** and experts **agree** with priority strategy for strengthening the halal domestic market.

Based on the sub-cluster of product diversification strategies, main indicator according to experts that is standardization of international halal food quality with average score (0.34), promotion of Indonesian halal products abroad (0.30), and lastly open chain distribution abroad (0.28). With the score of *rater agreement* ($W = 0.73$) and P-value (0.09) means the answer is insignificant and experts have no agree on this cluster.

Based on strategy sub-cluster Institutions Effectiveness, main indicators according to experts namely the incentive program for perpetrator effort with average score (0.34), Investment self-sufficiency ingredient standard (0.30) and regional programs featured (0.30). With the score of *rater agreement* ($W=0.73$) and P-value 0.09, meaning **significant** and experts **agree** with the priority of effectiveness institution strategy. Based on the Reinforcement strategy of Halal Food Value Chain Ecosystem, main Indicator according to experts that is Establishment halal center in every area with the average (0.61) and Halal food R&D development with the industries (0.38).

Based on the results of the analysis, a number of findings were obtained that can be used as a reference for related parties in policy making. The main findings in this study are the main strategic priority indicators according to experts, namely strengthening the value chain ecosystem, strengthening the domestic market, institutional effectiveness, and the final priority is product diversification. Strengthening the value chain ecosystem can help build consumer confidence in the

products produced, which is important in the halal industry. By ensuring that the entire supply chain complies with halal principles, consumers can trust that the products purchased comply with Islamic law (Muis et al., 2023). In addition, a strong halal value chain ecosystem can improve the competitiveness of the halal industry. Halal supply chains are now a new form of business attracting global attention, and strengthening this ecosystem can help attract more players to the industry, including food industry players, cosmetic and pharmaceutical companies, and even academics and researchers (Antonio et al., 2020).

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 food ingredients, hygiene, safety, health, nutrition, and quality. This is especially important in the era of modernization, where the use of technology can support the halal supply chain and reduce operational costs, lost sales opportunities, and inventory needs. Strengthening the halal value chain ecosystem can also help the halal industry develop and thrive in the era of society 5.0. This includes sectors such as the food and beverage industry, stakeholders such as government, consumers, industry, and investors, as well as the use of technology to support the halal supply chain (Asri & Ilyas, 2022).

There are several strategies that can be implemented to strengthen the halal value chain ecosystem. Noordin et al (2014) revealed the importance of the halal certification system. This is because applying a strategic approach such as a halal certification system to halal quality management can help overcome operational challenges in the halal value chain. Then, implementing a Supply Chain Management (SCM) Strategy as a component of competitive strategy can also increase the halal market, especially halal food (Noordin et al., 2014). In addition, there are a number of key components that need to be considered in strengthening the halal value chain ecosystem, namely financing, related to securing financial resources to support the development and growth of halal businesses and industries, production processes, namely ensuring that all stages of production, from raw materials to finished products, comply with halal standards and principles, and logistics, which includes efficient transportation, storage and distribution of halal products from the point of production to the point of consumption (Muis et al., 2023).

The second priority is strengthening the domestic market. Strengthening the domestic market is critical to the development of halal food, as it provides a solid foundation for the growth and expansion of the halal food industry. As the global Muslim population grows, the demand for halal food is expected to increase, making it a valuable market for food manufacturers and processors. Developing the domestic halal food market can help drive economic growth and job creation. The production and processing of halal food is labor-intensive, thus creating jobs, especially in countries with large Muslim populations. In addition, strengthening the domestic halal food market can help ensure food safety. Halal food production can be integrated with sustainable agricultural practices, such as organic farming, which can help maintain land and environmental health.

Then based on the sub-cluster strategy, it is found that in strengthening the value chain ecosystem, the main priority is the establishment of a halal center. Halal centers play an important role in ensuring the integrity and sustainability of the halal food industry. [Lubis & Syibromalisi \(2023\)](#) explained, the halal center provides certification services that validate that products comply with the principles of Islamic law, which can help increase consumer trust and confidence in halal products. In addition, the halal center also provides education, product innovation, and supervision. This is beneficial for businesses to understand and comply with halal standards and principles, meet the diverse tastes and preferences of Muslim consumers, and comply with halal standards and principles throughout the supply chain, which in turn can improve the overall quality of halal products, as well as expand the market and increase the competitiveness of the halal industry ([Lubis & Syibromalisi, 2023](#)).

Furthermore, [Rakhmad et al \(2023\)](#) also explained that halal centers can provide incentives for local and global investors to support the development of the halal value chain industry, which can lead to the growth and expansion of the halal food industry. Halal centers can also launch campaigns to promote halal products and services to Muslim consumers, which can help increase demand and support the growth of the halal industry. However, establishing a halal center to strengthen the halal value chain ecosystem is not without challenges. This is also explained by [Islam et al \(2023\)](#), where the halal certification body as one of the main components in the halal center, faces coordination and motivation challenges in ensuring the

implementation of halal standards and certification. [Noordin et al \(2014\)](#) added that inadequate infrastructure and regulatory challenges are also obstacles in establishing a halal center. To overcome these challenges, it is important to address coordination and motivation issues, encourage standardization, ensure authenticity of certification practices, invest in infrastructure, and work towards harmonizing regulations and enforcement. By addressing these challenges, halal centers can contribute to the strengthening of the halal value chain ecosystem and the growth of the halal food industry.

Furthermore, in the domestic market strengthening sub-cluster, the main priority is the standardization of domestic halal products. The development of domestic halal product standardization has been carried out previously, where this strategy includes the implementation of the Halal Product Guarantee (JPH) system which is still not fully implemented to ensure certification and standardization of halal products ([Widiastuti et al., 2020](#)). Standardization is very important to provide protection for health and safety, and realize the quality of products and services produced by increasing efficiency in the process of managing the halal certification process ([Krisharyanto et al., 2019](#)). The standardization process is also intended to answer the challenges faced by the halal industry in Indonesia, such as the lack of R&D facilities and testing of halal product ingredients, limited integration of upstream and downstream industries in the fashion sector, and the absence of a unified system that can support each other ([Widiastuti et al., 2020](#)).

In addition, [Nadha \(2021\)](#) also states that standardization ensures that halal products meet the requirements of Islamic law, providing protection to consumers who are looking for products that are in accordance with their religious beliefs. The existence of halal standardization or certification can increase the competitiveness of Indonesian halal products in the global market, especially in Muslim-majority countries that have strict halal and food safety requirements. This can help Indonesian halal products reach a wider market, as consumers are more likely to trust and buy products that have been certified and labeled as halal. In turn, by complying with international halal standards, Indonesian halal products can meet the requirements of the export market, thus potentially increasing the country's exports and contributing to the country's economy ([Anggarkasih & Resma, 2022](#)).

In the institutional effectiveness sub-cluster, the main priority is the incentive program for business actors. Incentive programs for business actors are very important for institutional effectiveness in particular, in the halal food industry because they can encourage more business actors to engage in halal food production. In addition, businesses will also be more motivated to obtain halal certification, follow established guidelines, and improve the quality of their products, which in turn can help ensure that products are safe, healthy, and meet the highest quality standards, which can be an important factor in consumer trust and loyalty (Ab Talib, 2017). Incentives can also help improve the overall competitiveness of the halal food industry by encouraging innovation, efficiency improvements and broader market development, particularly by providing financial or regulatory support for businesses that invest in new processes, technologies or products. This can help businesses remain competitive and adapt to changing market conditions, which is important for the growth and development of the industry (Ab Talib, 2017).

Finally, the diversified products sub-cluster has as its top priority the standardization of international halal food quality standards. Standardization helps ensure that halal food products meet the same quality and safety standards, regardless of where they are produced or sold. This consistency is very important to maintain consumer trust and confidence in the halal food industry. This is also expressed by Ali et al (2021), where standardization helps maintain consistent food quality, ensure that food is safe and healthy for consumption, and can help prevent food scandals and maintain the integrity of the halal food supply chain. In addition, the halal food industry is growing rapidly, and standardization helps create a global market for halal products. It also helps in promoting Halal and Tayyib food culture on a national and international scale (Naji et al., 2018).

CONCLUSION

This study tries to find strategies for the development of the halal food industry in Indonesia with one of the MCDM approaches, namely ANP. ANP is a relatively new and quite powerful MCDM method. The results show that the biggest weight is the strategy of strengthening the halal value chain ecosystem (0.33). Next are aspects of strengthening the local market (0.25) and aspects of institutional effectiveness (0.19). Last but not least is the product diversification strategy (0.16). Based on the results of

this study, regulators can develop policies that support the establishment of halal centers as part of strengthening the value chain ecosystem. This can be done by providing fiscal incentives, technical assistance, and licensing that facilitate the establishment of halal centers. Then, regulators are expected to further encourage the standardization of domestic halal products by developing policies that facilitate the standardization process, including standard development, certification, and supervision of halal products. In addition, practitioners can take the initiative in standardizing domestic halal products by ensuring their products meet the established standards. Then, actively implement halal product promotion and literacy to increase awareness and acceptance of halal products in the domestic market. As for academics, it is expected to conduct further research and development related to strengthening the value chain ecosystem, domestic market, and institutional effectiveness in the context of halal products, as well as providing training and education to practitioners and regulators regarding the importance of halal certification of MSME products and international halal product standardization.

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