



Prioritization of strategies to enhance the competitiveness of the halal food industry in Madura

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ABSTRACT

Madura holds potential for the development of the halal industry, supported by natural resources and a workforce. Competitiveness becomes a key factor in the success of the industry amidst free competition with other industries outside of Madura. Determining priority strategies to enhance the competitiveness of halal food requires a proper decision-making system involving experts. This research aimed to identify strategies to enhance the competitiveness of the halal food industry in Madura. The analytical method used was the analytical hierarchy process (AHP). The research focused on the food industry in Madura, and the informants consisted of experts in the development of halal food industries. The analysis results indicate the sequential priority strategies to enhance the competitiveness of the halal food industry in Madura: enhancing the competency of human resources in the halal food industry, setting quality production standards, building networks for marketing halal food, implementing halal value chains, obtaining halal certification, and utilizing Shariah-compliant financing.

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1 Introduction

The Halal industry is getting more significant, particularly in Indonesia, because there are many Muslim population. This was affirmed by the figure obtained from the Royal Islamic Strategic Studies Center (RISSC) that the population of Muslims in the country was approximately 240.62 million in 2013 and identified as 86.7% of the country population. This group forms a strong market base for the expansion of the halal industry especially in the production of food products. In supporting this potential, the Ministry of Religious Affairs of the Republic of Indonesia (2022) estimated that about 750 thousand Indonesian products had received halal certificates. The certification is adjudged to be very important because it ensures that the products produced are acceptable under the provisions of Islamic law and consider safe for consumption by the Muslims.

There are quite a number of areas that possesses significant potential in the development of halal food industry, including Madura (Adiba & Amir 2023), specifically due to the large Muslim population. However, despite this opportunity, the region has not yet become the largest producer of halal food products. Challenges such as a lack of focus on priority development areas, competition from foreign halal producers, and limited awareness about halal certification among local MSMEs hinder the full potential of the industry. To address the challenges, it is critical to develop strategies and a decision-making model to improve the competitiveness of industry in Madura. The focus on halal certification and the development of effective strategies are expected to assist the area in boosting the halal food industry to meet the demands of both domestic and international markets.

The process requires designing a decision support system to determine prioritize strategies as a major contribution to both business actors and the local government (Rum *et al.* 2019; Wiratama *et al.* 2022). This leads to the consideration of the analytical hierarchy process (AHP) (Wiratama *et al.* 2022) which is a model for supporting decisions from several alternatives in order to solve a problem. According to Manik (2023), the method has been previously applied in food industry, specifically halal food. Some of the criteria needed to develop industry include production systems, human resources, markets, and feasibility levels (Nurmaydha *et al.* 2019; Rum *et al.* 2019). This is necessary because industry that prioritizes product quality

has a competitive advantage in both domestic and international markets (Rum *et al.* 2020). Therefore, increasing competitiveness in the industry requires appropriate strategies such as an improvement in the supply chain and value chain management (Hidayati *et al.* 2021; Rum *et al.* 2019; Sulistyowati & Rum 2021). The development of the halal food industry in Madura is an opportunity but also considered a threat when there is no capacity to compete in the global market. This shows the need to provide the halal value chain model.

Previous studies by Ibrahim *et al.* (2018); Ismoyowati (2015); Masruroh (2020); Mutmainah (2018); Qoniah (2022); Umiyaiti & Tamrin (2021); Wan Hassan *et al.* (2017); Yusoff *et al.* (2015) focused on halal supply chain and the improvement of competitiveness strategies. The uniqueness and novelty of this study was to specifically examine strategies to enhance the competitiveness of the halal food industry through the designation of the halal value chain (HVC) as an alternative. Therefore, the aim was to determine strategies to increase the competitiveness of industry in Madura based on the criteria of production systems, institutions, and industrialization. An alternative strategy considered by experts was the implementation of the halal value chain concept in the development process.

2 Methodology

2.1 Study Location

The location for this study was purposively selected to be Bangkalan Regency which was recognized as a center for food and beverage industry activities in the statistical data published by the Bangkalan municipality, Statistics Indonesia (BPS), and other relevant districts (Sampang, Pamekasan, and Sumenep). Table 1 shows different locations classified based on the regency and products.

2.2 Sample Preparation

The sample used consisted of two groups with the first being 20 food and beverage processing entrepreneurs selected through a simple random sampling method. The second was a total of 50 customers from the Madura halal food industry selected to provide insights into the product quality priorities in the region.

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Table 1: Study location based on regency and production

Regency	Subdistrict	Central production
Bangkalan	Socah	Creakers made from dried sea cucumber fish
	Kamal	Herbal drink
Sampang	Sampang	Processed cassava
	Ketapang	Herbal drink
Pamekasan	Pademawu	Rengginang, petis, anchovy rice
	Pamekasan	Herbal drink
Sumenep	Lenteng	Honey
	Bluto	Processed chili and moringa, and herbal drink

Source: Primary data (2023)

2.3 Data Collection

Data were gathered through primary sources, including structured surveys, unstructured in-depth interviews, and field observations. The key informants included experts in the halal food industry, such as The Head of the Trade Department, The Head of the Cooperative and MSMEs Department, Field Extension Officers (PPL) from the Marine and Fisheries and Agriculture Departments, The Head of the Halal Center at Universitas Trunojoyo Madura, and Academics from Universitas Trunojoyo Madura.

2.4 Analysis

The data analysis was conducted through the Analytic Hierarchy Process (AHP) which was considered a decision-making method to prioritize strategies and quality criteria for the halal food industry. The steps used are stated as follows:

- a. Determining the study objective
- b. Identifying the criteria
- c. Selecting alternatives including product quality priorities and strategies to increase competitiveness
- d. Constructing the hierarchical structure for decision-making
- e. Processing the data using Expert Choice 11 software
- f. Selecting alternatives based on the analysis results
- g. Testing the consistency of the data using deviation standards
- h. Synthesizing and analyzing results, including sensitivity analysis

The criteria and alternative strategies to enhance the halal food industry in Madura were based on several references and study results (Marimin & Maghfiroh 2015; Nurmaydha *et al.* 2019; Oktaviana & Rum 2023; Rum *et al.* 2019). These are further presented in the following Table 2.

Table 2: Study location based on regency and production

Criteria	Alternative strategies
Production system	Determination of production quality standards Halal certification
Institutional	Increasing human resource competency in the halal food industry Implementation of halal value chain
Industrialization	Building the halal food marketing network Sharia financing

A hierarchical structure was further developed to determine strategies to be prioritized in order to increase the competitiveness of industry. The structure is presented in the following figure:

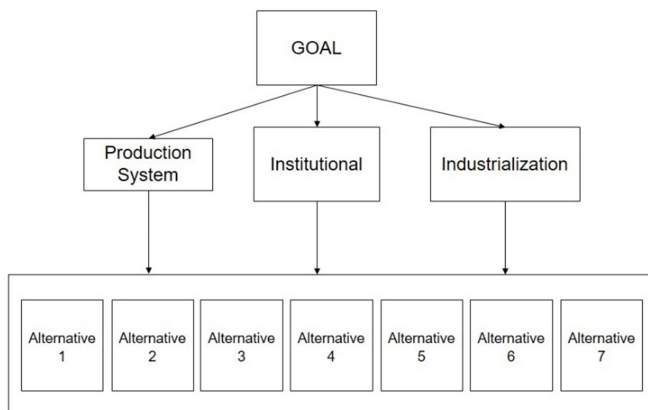


Figure 1: Hierarchical structure to increase the competitiveness of the halal food industry in Madura; The assessment scale used is as follows: 1 = Equally important between Element A and Element B, 3 = Element A is slightly more important than Element B, 5 = Element A is more important than Element B, 7 = Element A is very important than Element B, 9 = Element A is absolutely/definitely more important than Element B, 2,4,6,8 = Middle scale (when there is a doubt between two adjacent values), and vice versa, 1/3 = Element B is slightly more important than Element A, 1/5 = Element B is more important than Element A, 1/7 = Element B is very important than Element A, 1/9 = Element B is absolute/definitely more important than Element A

Each hierarchical level was assessed using pairwise comparisons by the informants. This was achieved by comparing the criteria, sub-criteria, and existing alternatives for the purpose of decision-making. A scale of 1-9 was considered when comparing each pair of elements at each level of the hierarchy against an element at the upper level (Saaty 2008).

3 Result

3.1 Weight of Main Criteria in Determining Strategies

This study used three criteria to determine strategies to increase the competitiveness of the halal food industry in Madura, which were production systems, institutions, and industrialization. Moreover, AHP analysis was used to determine the priority of these criteria with the results presented in the following Figure 2.

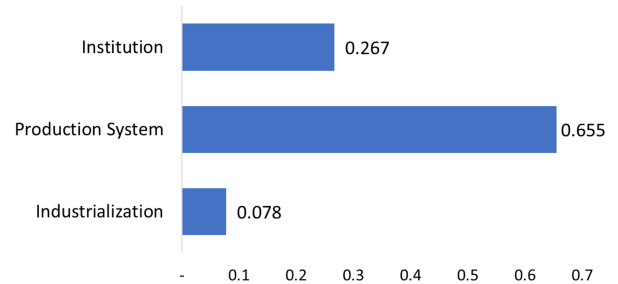


Figure 2: Criteria prioritized in determining strategies to increase the competitiveness of the halal food industry in Madura

3.2 Determining Alternatives Strategies

The next stage was to determine alternative strategies to increase competitiveness. The results obtained through the application of AHP analysis are presented in the following Figure 3.

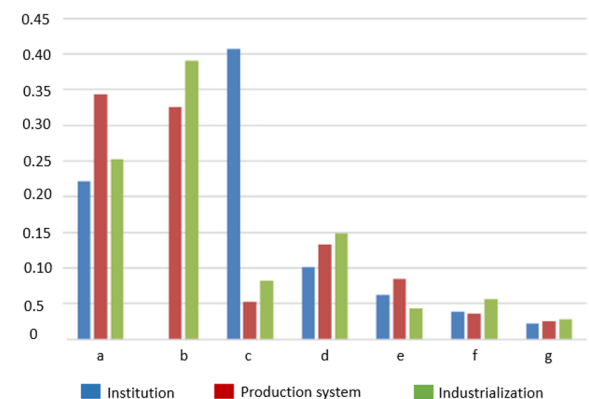


Figure 3: Weight value of alternative strategies for increasing competitiveness of the halal food industry in Madura; Increasing the competency of HR in the halal food industry (a), Determining product quality standards (b), Building a marketing network for halal food products (c), Implementation of the halal value chain (d), Halal certification (e), Sharia financing (f), Developing the halal food industry (g).

3.3 Determining the Priorities of Strategies per Criteria

The production system criterion is one of the priority strategies for enhancing the competitiveness of the halal food industry in Madura. The analysis results obtained through AHP are presented in Figure 4.

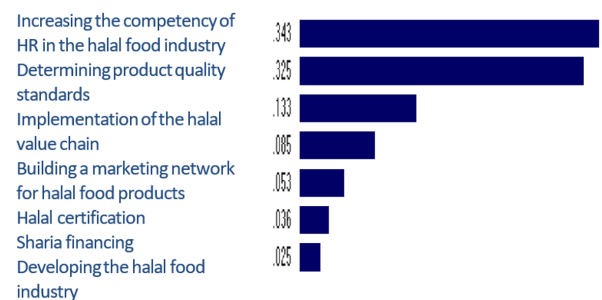


Figure 4: Prioritization of strategies for increasing the competitiveness of the halal food industry in Madura based on production system criterion

Another criterion considered in increasing the competitiveness of the halal food industry was institution. The results obtained through the AHP analysis are presented in the following Figure 5.

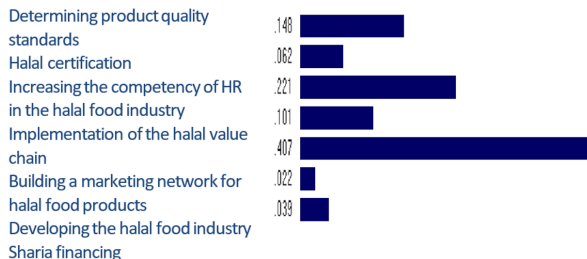


Figure 5: Prioritization of strategies for increasing the competitiveness of the halal food industry in Madura based on institutional criteria

The final criterion for prioritizing strategies to enhance the competitiveness of the halal food industry in Madura was industrialization. The results obtained through the AHP analysis are presented in Figure 6.



Figure 6: Prioritization of strategies for increasing the competitiveness of the halal food industry in Madura based on industrialization criterion

3.4 Prioritizing Strategies Based on the Combination of All Criteria

The prioritization of strategies to enhance the competitiveness of the halal food industry in Madura is based on an integrated analysis that considers a combination of all relevant criteria, ensuring a comprehensive and balanced approach to strategic decision-making. The results of this analysis are presented in Figure 7.

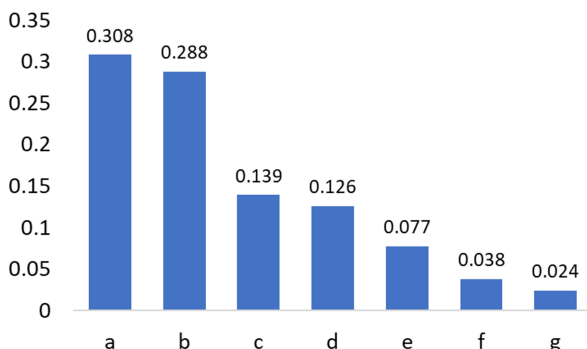


Figure 7: Prioritization of strategies for increasing the competitiveness of the halal food industry in Madura based on the combination of all criteria; Increasing the competency of HR in the halal food industry (a), Determining product quality standards (b), Building a marketing network for halal food products (c), Implementation of the halal value chain (d), Halal certification (e), Sharia financing (f), Developing the halal food industry (g).

4 Discussion

4.1 Weight of Main Criteria in Determining Strategies to Increase Competitiveness

The results of the AHP analysis showed the weights of the criteria to determine strategies to increase the competitiveness of industry. It was observed that production weighed 0.655, institution had 0.267, and industrialization recorded 0.078. From this assessment, it can be concluded that the production system is the main criterion. This was in line with the observation of Jayant (2018) that the production system was the most important factor in formulating improvement strategies by applying the AHP method to supplier selection in the automotive industry. However, Utami *et al.* (2014) state that the production system was not the main criterion in strategic priority to increase the competitiveness of the Besno tobacco industry at PT. IBB. It was identified as the third criterion after the quality of human resources and an integrated system.

4.2 Determining Alternative Strategies

Based on Figure 2, the weight values of alternative strategies for increasing the competitiveness of the halal food industry in Madura were obtained using AHP. This result showed that the improvement of human resources competency was the most significant strategy. Competent human

resources are the key to success in every halal food industry in Madura by producing qualified, efficient, and effective products. This was supported by the explanation of Rohmah (2017) that improving human resource competency increased the competitiveness of the Bamboo Woven industry in Tulungagung Village, as viewed in Sharia economics. In addition, Phudphad *et al.* (2017) stated that increasing human resource competency could increase competitiveness in the open climate industry in Thailand.

Implementing the halal value chain and building a marketing network for halal food products are the second and third most important strategies for increasing the competitiveness. This is because the halal value chain integrates all aspects related to halal food production, starting from raw materials, production processes, and marketing. An integrated halal-value chain system can produce qualified and safe products. Moreover, a wide marketing network is needed to reach more consumers to subsequently boost sales and industry profits.

4.3 Prioritizing Strategies Per Criteria

Based on the Figure 4, there are 3 top strategies for increasing the competitiveness of the halal food industry in Madura based on the production system criteria, which are as follows:

- Increasing human resource competency was the most important strategy. Competent human resources can operate in a good production system to ensure the production of qualified, efficient, and effective halal food in Madura.
- Increasing production quality standards was the second most important strategy. This is because high product quality can fulfill consumer needs and win competitiveness for the halal food industry in Madura.
- Implementing the halal-value chain was the third-most important strategy. This is because a halal value chain is an integrated system which is capable of producing qualified and safe halal products.

Based on the results in Figure 5, it can be interpreted that the strategies to increase the competitiveness of the halal food industry in Madura based on institutional criteria are as follows:

- Building a marketing network for halal food products is an important strategy. This is because a good marketing network can provide complete quality for halal food products. Moreover, a complete sales system and marketing channels can increase the efficiency and effectiveness of the halal food industry production.
- Increasing the competency of human resources in the halal food industry was the second most important strategy. This is because competent human resources are able to manage halal food industry institutions in addition to making appropriate and effective decisions.
- Determining production quality standards was the third most important strategy. This is because high production quality standards can be realized when the halal food industry institution is strong.

Based on the results presented in Figure 6, the strategies to increase the competitiveness of the halal food industry in Madura based on the industrialization criterion are as follows:

- Determining the production quality standards was the most important strategy. This is because clear quality standards can become a reference to produce high-quality products.
- The second strategy was to increase human resource competency in the halal food industry. This is due to the ability of competent human resources to run a good halal food industry.
- Implementing the halal value chain was the third important strategy. This is because the halal value chain is a system that covers from the procurement of raw materials to the marketing of the products.

4.4 Determining Strategic Priority for Increasing the Competitiveness of the Halal Food Industry in Madura Based on a Combination of All Criteria

Based on the results presented in Figure 7, the analysis led to the interpretation that the strategies to increase the competitiveness of the halal food industry in Madura based on the combination of all criteria could be stated as follows:

- Increasing human resources competency was the most important strategy. Competent human resources are key to success in every industry due to the ability to produce qualified, efficient, and effective products.
- Increasing production quality standards was the second important strategy. This is because high product quality can lead to the fulfilment of consumer needs and competitive edge. The trend was supported by Adiba & Nasrulloh (2021) that many Muslim tourists visited Madura because of the quality of souvenir products with certification of halal products.
- Building a halal food marketing network was the third most important strategy. This is because a wider marketing network can reach more consumers to subsequently boost sales and industry profits.

5 Conclusion

In conclusion, the main criteria used to determine strategies for increasing the competitiveness of the Madura halal food industry were production systems, institutions, and industrialization. Moreover, strategies prioritized were increasing the competency of human resources, determining production quality standards, building the halal food marketing network, as well as implementing the halal value chain, halal certification, and sharia financing. It was concluded that the government and industry actors should ideally prioritize improving human resource competency, determining production quality standards, and building the halal food marketing network to increase the competitiveness of industry in Madura.

Conflict of Interest

The authors declare no conflict of interest.

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