

Halal human capital development strategy in Madura: ANP-SWOT approach

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Abstract. Sharia economic growth in Indonesia has increased significantly, at present, the Indonesian human capital index remain relatively low. Hence, research on human capital is necessary to close the gap. This research is aimed to provide a significant strategy for human capital development in the halal industry, providing as a crucial guideline for policymakers involved in the economic development of Shariah in Indonesia. The research approach applied is qualitative, using the Analytic Network Process (ANP) method through the SWOT network framework (Strength-Weakness-Opportunity-Threat). The study investigates several types of strategies and steps that focus on the interrelationships and feedback of elements within clusters using both qualitative and quantitative methods. This approach collects the opinions of professionals with deep expertise in the topic. The data was collected from 15 respondents who are specialists in academia, regulation, and practice, conducting study on Madura Island. The experts' opinions were assessed using Super Decisions software and Microsoft Excel to determine priority values, which were further examined in the priority strategy. The research identifies the SO (Strength Opportunity) strategy for enhancing halal human capital development in three stages. Short-term goals include enhancing the infrastructure of the halal ecosystem. Medium-term objectives involve improving education quality, optimizing synergies, establishing a halal management laboratory, and enhancing promotion and socialization. Long-term strategies focus on strengthening capacity building, improving halal training programs, and establishing expert certification facilities.

1 Introduction

Human capital is a crucial factor in supporting a nation's advancement in technology, education, health, and economic growth (Lee & Lee, 2016). Human capital refers to a program aimed at enhancing skills, education, standards, and health acquired through education, training, and healthcare (Nuñez & Prieto, 2019). The purpose of human capital is to enhance interpersonal characteristics such as broad insights, competent abilities, greater knowledge, and healthy wellbeing. (Islam & Amin, 2022). Improvements of quality may result in enhanced productivity, stimulating growth and economic development (Crook et al., 2011). Human capital significantly impacts economic growth and development (Tamura, 2006).

The Indonesian Shariah Financial Development Report (LPKSI) (2022) states that Indonesia's GDP has expanded by 5.3%. The shariah economy shows incredible improvement, with the shariah financial market share reaching 10.69% of Indonesia's total financial assets in 2022. The financial literacy index of the Indonesian population increased from 8.93 percent in 2019 to 9.14 percent in 2022, based to OJK's 2022 National Literacy and Financial Inclusion Survey (SNLIK). Indonesia ranked third globally for economic

and financial development in the 2022 Islamic Finance Development Indicator (IFDI).

The Shariah economy in Indonesia increased due to the excellent performance of the Halal Value Chain sector within the primary sectors of the halal industry, including agriculture, halal food and beverages, Muslim fashion, and Muslim-friendly tourism (PRM). Halal farming's performance has shown a constant positive growth of 1.89% year over year, surpassing the same period in 2021 by 1.37%. The PRM sector has experienced a growth of 19.04%, which is 0.37% greater than in 2021.

However, based on statistics from The World Bank's human capital index, Indonesia is placed 130 out of 199 countries. Indonesia is placed sixth in ASEAN, following Singapore, Vietnam, Brunei Darussalam, Malaysia, and Thailand. The Global Competitiveness Index (2019) considers education and training as key variables in assessing the quality of human capital. Indonesia ranks 65th out of 141 countries due to low high school attendance rates, high school participation rates, education quality, curricula quality, internet connectivity in schools, and training for soft and hard skills.

The state of human capital in the Shariah economy in Indonesia is currently inadequate. According to the

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Database of Higher Education (2020), there are 494 University studies in Shariah economics offered by higher education institutions, with just 16 of them being accredited A. Furthermore, the number of certifying institutions and experts within each institution remains limited. In 2019, the Sharia Finance LSP reported that there were only 1785 certified Sharia economists graduates. The Indonesian Shariah Economy Masterplan 2019-2024 emphasizes that literacy, human resources, and research and development are crucial components of the fundamental ecology and strategy for halal industrial development in Indonesia (Indonesia, 2020). Human resource preparation is essential in facing global economic changes represented by disrupt economies and the fourth industrial revolution. Human resources require high quality and expertise to efficiently advance the Shariah economy (Sri Herianingrum et al., 2019). Additionally, human resources require the determination to stay focused in competitive and innovation through study and development. The Sharia economy's progress in the halal business depends on competent human resources.

Human capital is an essential aspect that needs to be utilized into account when progressing the halal sector. (Rafiki & Abdul Wahab, 2016). The challenges such as inadequate training facilities, unhealthy lifestyles, and unstable income contribute to the substandard development of human resources (Baharin et al., 2020; Hashim & Shariff, 2016; Tamura, 2006). The present situation inspired academics to engage in scientific research aimed at identifying solutions and techniques to enhance human resource productivity. Research has explored enhancing human capital capacity using a social theory framework (HAREEBIN, 2021); The impact of human capital on productivity and economic development by (Baharin et al., 2020; Nasir et al., 2020; Tamura, 2006); Human capital's importance in the entrepreneurial ecosystem by (Østergaard & Marinova, 2018).

Although significant scientific research on human capital by experts, empirical evidence reveals that Indonesia's human capital index is now placed 130th out of 199 countries. Further and extensive study on methods to enhance halal human capital is necessary. This article utilizes the Analytic Network Process (ANP) method with the SWOT (Strength-Weakness-Opportunity-Threat) network structure in the research approach. SWOT analysis is a tool applied to identify opportunities, threats, strengths, and weaknesses in order to develop tactical plans and actions. The Analytical Network Process (ANP) is utilized to investigate the interrelated connections and feedback among elements inside clusters or between clusters, as perceived by experts. This method will create a detailed strategic model aimed at benefiting professionals, scholars, and decision-makers involved in formulating policies regarding halal human capital investment. The goal is to enhance the Indonesian human capital index on a global scale by ensuring that the country's halal human resources are efficient, compliant with health standards, and covered by life coverage. This study will

hopefully function as an outline for identifying future research requirements.

2 Method

2.1 Research approach

This study applies a qualitative research methodology using the Analytic Network Process (ANP) method analysis within a SWOT network framework. SWOT analysis.

This study explores the formulation of a human capital development strategy for Halal in Madura. Thus, it necessitates a specific set of strategies and actions implemented by the organization to govern the direction of business and decide on the organization's long-term operations. A often utilized study is the Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis, which is a technique for assessing the strengths, weaknesses, opportunities, and threats of a company (Hill & Westbrook, 1997). SWOT analysis is an essential method for decision-making which enables systematically evaluate both the internal and external environment of the organization (Hill & Westbrook, 1997; Ilyas et al., 2018; Kangas et al., 2003; Kotler, 1991; Kurttila et al., 2000; Shrestha et al., 2004).

This study offers more than just the SWOT analysis to enhance the optimal result. SWOT analysis requires the capability to determine the amount of elements, which prevents the determination of the relative importance of each aspect in influencing the required strategy or policy (Kajanus et al., 2004). Although qualitatively, SWOT analysis is a tool used to evaluate internal factors (Strengths, Weaknesses) and external factors (Opportunities, Threats) in relation to a certain preference. It allows for comparisons between opportunities and threats against strengths and weaknesses. (Shrestha et al., 2004). However, the results of SWOT analysis are often merely a list or an incomplete qualitative examination of internal and external factors (Kajanus et al., 2004) For this reason, the SWOT analysis is incapable of providing a comprehensive evaluation of the strategic decision-making process. (Hill & Westbrook, 1997).

Consequently, an analytical network process (ANP) is utilized to conduct the SWOT analysis in this study, enabling the assessment of SWOT factor dependence. ANP provides the development methodology for the Analytic Hierarchy Process (AHP), a method of decision-making constructed bereft of assumptions and utilizing a multitude of criteria (Saaty, 2013). One benefit of using ANP is that it prevents the requirement to make assumptions concerning the relative importance of independent variables at different levels and within the same level (Taslicali & Ercan, 2006).

The ANP SWOT method is commonly utilized for formulating strategies, including those for the advancement of textile businesses (Yüksel & Dağdeviren, 2007), knowledge management (Arsić et al., 2018; Oktari et al., 2023), marketing strategic (Ilyas et al., 2018), Industrial Field (Liu et al., 2018; Shakoor

Shahabi et al., 2014) and human resource strategy management (Shahanipour et al., 2020).

2.2 Stages of research

2.2.1 Stages of SWOT analysis

Strategy formulation is a component of long-term planning that involves developing missions, goals, strategies, and policies, beginning with a company's situation analysis (Hunger dan Wheelen 2012). Then, the results of the situation analysis are formulated into a SWOT matrix. Here are the stages of SWOT analysis:

- Identify strengths, weaknesses, opportunities, dan threats human capital in Madura.
- The data points were evaluated using the Internal Factor Evaluation (IFE) matrix and the External Factor Evaluation (EFE) matrix.
- The next stage is positioning analysis. The analysis tool used is the 4-Quadrant SWOT Matrix Analysis.
- Analysis using the 4-K SWOT matrix uses a diagram divided into 4 quadrants which aims to find out the company's position and development and what SWOT strategy is used whether using the SO (Strength-Opportunity), WO (Weakness-Opportunity), ST (Strength-Threats), or WT (Weakness-Threats) strategy.

2.2.2 Stages of ANP analysis

ANP consists of three stages: model creation, model quantification, and analysis and interpretation (Ascarya & Iskandar, 2013). Here are the stages of investigation on the ANP approach.

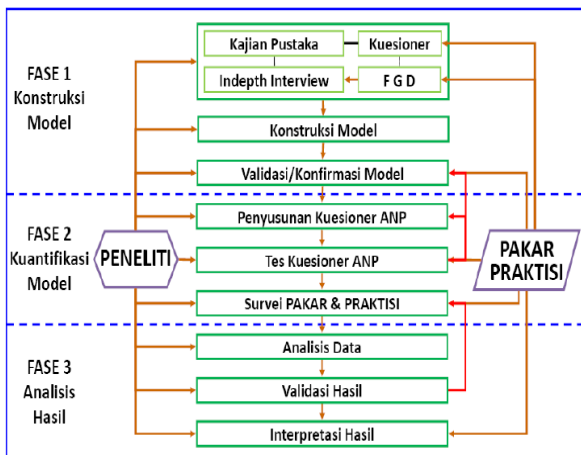


Fig. 1. The stages of investigation applying the ANP method.
 Source: (Ascarya, 2005).

The steps of the examination are delineated as follows:

- The first step contains the construction of the model. As the foundation for constructing the framework, the research issues are presented at this stage. Subsequently, data from a variety of sources, including in-depth interviews with 12 experts from academic institutions, practitioners, associations, and governments, were utilized to construct the framework.

- The selection of the expert group was based on their ability to present researchers with a thorough and all-encompassing synopsis of the diverse viewpoints pertaining to the construction of the Halal human capital development strategy in Madura.
- The construction of the framework model is subsequently validated by the experts via a twelve-person Forum Group Discussion. - The second phase involves quantifying the model through the development of a questionnaire that is subsequently completed by experts using a numeric scale ranging from 1 to 9 (Saaty, 2005).

Table 1. Assessment Scale and Numeric Scale.

| Value | Definition | Explanation |
|---------|--|---|
| 1 | Equally important | Both variables have an equally large influence on goals. |
| 3 | A little more important | Judgment considerations on one variable are slightly more important than other variables. |
| 5 | Obviously more important | Judgment considerations on one variable are clearly more important than other variables. |
| 7 | Very obviously more important | Judgment considerations on one variable seem very clearly more important than other variables. |
| 9 | Absolute is more important | Assessment considerations on one variable that are absolute and have the highest level of affirmation than other variables. |
| 2,4,6,8 | Values between and nearby considerations | Valuation between two nearby values and need consideration. |

Source: (Ascarya, 2005).

Following the completion of the questionnaire, the data obtained from the questionnaire is calculated and analyzed utilizing the Super Decision software.

- The third step consists of interpretation and analysis. As illustrated in the subsequent image, the author will complete a series of stages during the final phase, as shown in the picture below.

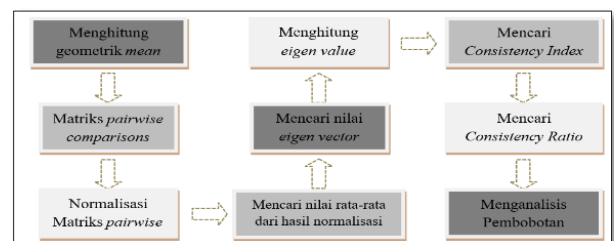


Fig. 2. ANP analysis steps.

3 Result discussion

3.1 Result

3.1.1 Analysis SWOT human capital halal

Table 2. IFE analysist data result.

| IFE ANALYSIS | | | | |
|----------------|---|--------------------|----------------|-------------|
| Symbol | Internal Indicators (Strength) | Validation Weights | Average Weight | Score Total |
| S1 | The majority of Madurese are Muslims. | 0.15 | 3.27 | 0.50 |
| S2 | Madura has many Islamic educational institutions from madrasah to tertiary level. | 0.17 | 3.60 | 0.61 |
| S3 | Madurese people are a society that is very attached to religious figures and Islamic teachings. | 0.11 | 2.27 | 0.24 |
| S4 | The number of religious figures in Madura is large | 0.13 | 2.67 | 0.34 |
| S5 | The majority of Madurese students or alumni of Islamic boarding schools | 0.14 | 3.07 | 0.44 |
| S6 | Government support for the development of the halal industry. | 0.17 | 3.53 | 0.59 |
| S7 | The number of religious events held every year by the Madurese community | 0.13 | 2.80 | 0.37 |
| TOTAL KEKUATAN | | 1 | | 3.09 |
| Symbol | Internal Indicators (Strength) | Validation Weights | Average Weight | Score Total |
| W1 | The curriculum of Islamic education in Madura is theoretical. | 0.13 | 2.4 | 0.30 |
| W2 | The lack of Government Programs in improving the quality of Halal human resources. | 0.16 | 3.06 | 0.49 |
| W3 | Madurese literacy in the halal industry is quite low. | 0.14 | 2.5 | 0.34 |
| W4 | Low mastery of digital technology. | 0.15 | 2.9 | 0.4 |
| W5 | There has been no integration of networks and synergies between parties. | 0.15 | 2.8 | 0.41 |

| IFE ANALYSIS | | | | |
|-----------------|---|--------------------|----------------|-------------|
| Symbol | Internal Indicators (Strength) | Validation Weights | Average Weight | Score Total |
| W6 | Most Islamic economics study programs at universities in Madura still have poor quality. | 0.16 | 3 | 0.47 |
| W7 | Low Salary of Employees in the Halal industry in Madura. | 0.13 | 2.4 | 0.30 |
| TOTAL KELEMAHAN | | 1 | | 2.74 |
| TOTAL S-W/2 | | | | 0.17 |
| ANALISIS EFE | | | | |
| Symbol | Internal Indicators (Strength) | Validation Weights | Average Weight | Score Total |
| O1 | The digital technology infrastructure is booming. | 0.17 | 3.53 | 0.60 |
| O2 | The rise of halal living campaigns. | 0.13 | 2.67 | 0.34 |
| O3 | The Government Plays an Active Role in Supporting the Development of the Halal Industry. | 0.13 | 2.60 | 0.33 |
| O4 | Higher education service programs are quite widely carried out in Madura. | 0.14 | 3.00 | 0.43 |
| O5 | There is a State college with a major in Shariah Economics. | 0.15 | 3.20 | 0.49 |
| O6 | Active support of Islamic economic organizations in improving halal literacy. | 0.14 | 3.00 | 0.43 |
| O7 | The market demand for halal products is still wide and large. | 0.13 | 2.80 | 0.38 |
| TOTAL PELUANG | | 1 | | 3.00 |
| T1 | Evolving negative stigma on halal issues such as the cost of certification difficult and expensive. | 0.17 | 3.20 | 0.54 |
| T2 | The lack of companies or institutions has halal human capital development programs in Madura. | 0.13 | 2.40 | 0.30 |
| T3 | Limited professional certification bodies and experts in the halal field. | 0.15 | 2.87 | 0.43 |

| IFE ANALYSIS | | | | |
|---------------|---|--------------------|----------------|-------------|
| Symbol | Internal Indicators (Strength) | Validation Weights | Average Weight | Score Total |
| T4 | Lack of halal certification infrastructure in Madura such as the Halal Inspection Agency (BPH) and Halal Slaughterers (Juleha) in Madura. | 0.16 | 3.00 | 0.47 |
| T5 | Lack of coordination between institutions related to the halal industry, such as the Ministry of Religious Affairs, Ministry of Trade, Ministry of Health, and the Indonesian Ulema Council (MUI) | 0.11 | 2.07 | 0.22 |
| T6 | Job vacancies outside the city or the State are higher. | 0.13 | 2.47 | 0.32 |
| T7 | Pesatnya The development of conventional industry. | 0.16 | 3.07 | 0.49 |
| TOTAL ANCAMAN | | 1 | | 1.97 |
| TOTAL O-T/2 | | | | 0.52 |

The results of the Internal Factor Evaluation (IFE) and External Factor Evaluation (EFE) are utilized in the 4-Quadrant SWOT matrix to ascertain the position and strategy for developing a sharia entrepreneurial environment. The 4-K SWOT matrix analysis involves utilizing a diagram divided into 4 quadrants to assess the company's current position and future development based on the analysis results:

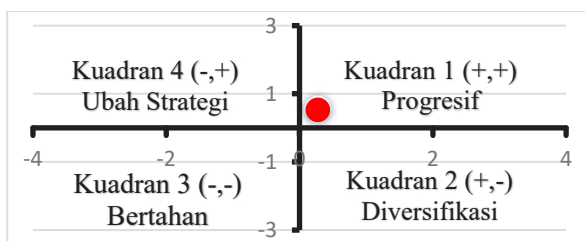


Fig. 3. 4-Quadrant SWOT Matrix Analysis.

Quadrant I represents the state of the human capital program in Madura, as indicated by the figure's results. Based on the obtained results, it can be inferred that the human capital program in Madura possesses promising attributes and prospects for the advancement of halal human capital. The SO (Strength-Opportunity) strategy is employed to construct an entrepreneurial ecosystem, as indicated by the previous findings.

3.1.2 ANP SWOT Results

The ANP results indicate that, according to the SWOT criteria, the strength factor encompasses the greatest impact on the development of an entrepreneurial ecosystem. The respondents' response to the SWOT criteria is as follows: strength (0.3362), opportunity (0.2755), weakness (0.1928), and threat (0.1887) in that order. The accumulated level of comprehension (0.7969) is 80%, with a significance level of 1%, which is below the utmost acceptable level of significance of 10%. The following are the outcomes of the ANP data:

Table 3. ANP data result.

| Kriteria | Responden |
|-----------------------|----------------|
| Strenght (Kekuatan) | 0,37845 |
| Weakness (Kelemahan) | 0,17610 |
| Opportunity (Peluang) | 0,26673 |
| Threath (ancaman) | 0,17872 |
| Kendall's W | 0.7969 |
| X ² | 35.86 |
| P-Value | 1*** |

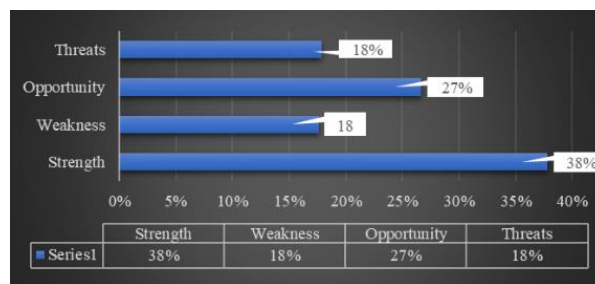


Fig. 4. ANP SWOT results.

The respondents in the previous table have the same understanding of priority; strength is ranked primarily. This result confirms the findings of quadrant I of the SWOT 4-Quadrant matrix, thereby establishing the Opportunity and Strength (SO) strategy as a strategic force in the development of halal human capital in Madura, Indonesia.

3.1.3 ANP strength

The following summary presents the results of the decisions selected by the respondents regarding the strength element.



Fig. 5. Results of ANP strength.

Respondents approve, based to the previously ANP results, that government support is the primary driver behind the growth of halal human capital in Madura.

3.1.4 ANP opportunity

The following table discusses the results of the decisions selected by the respondents regarding the opportunity element.



Fig. 6. Results of ANP opportunity.

According to the ANP results, respondents believed that the Government's proactive involvement in supporting the halal industry development is the primary opportunity to establish halal human capital in Madura.

3.1.5 ANP Weakness

The following is a table describing the results of respondents' choices on the element of weakness.



Fig. 7. Results of ANP weakness.

According to the ANP research, respondents indicated that Madurese literacy in the halal industry is quite low.

3.1.6 ANP threat

The following is a table describing the results of respondents' choices on the element of threat.



Fig. 8. ANP threat results.

According to the ANP results, respondents identified the increasing negative stigma around halal concerns, such as challenging and costly certification expenses, as the most significant threat to the development of halal human capital in Madura.

3.1.7 ANP Halal Human Capital Development Strategy in Madura

The table presents the respondents' preferences on halal human capital strategies for growth in Madura.

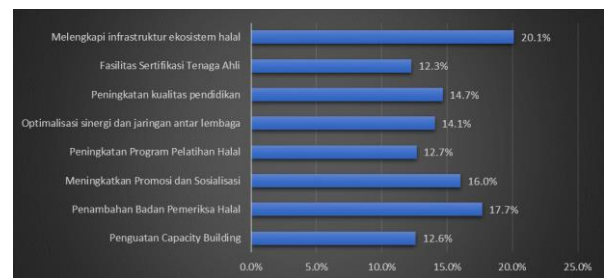


Fig. 9. The ANP priority strategy results.

3.2 Discussion

The study revealed that Madura must use internal strengths and external influences, specifically the government's backing and active involvement, to grow halal human capital. Government support is essential (Mutiarini et al., 2023), Indonesia aims to become the global hub for halal goods by implementing various strategies to enhance the Shariah economy and finance. These strategies include product innovation, market expansion, infrastructure development, halal value chain reinforcement, support for small and medium-sized enterprises, regulatory improvements, promotion of the digital economy, and enhancing human resource capabilities and research. The Madura local government should respond to the policy by arranging seminars, training sessions, enhancing human resources by boosting literacy, supporting UMKM, and encouraging awareness of the significance of the halal value chain as a lifestyle. The initiative is a strategy aimed at addressing the primary issue of human capital development in Madura, which is the low levels of literacy and knowledge in the halal business. The main concern is the increasing contrary reputation associated with legal issues, mainly the challenging and expensive certification expenses.

To solve both internal and external challenges, the ANP's primary goals for Madura might be divided into three stages: short-term, medium-term, and long-term. In the short term, a crucial and fundamental approach is to finalize the infrastructure of the halal ecosystem. Data indicates it in Madura. The Halal Inspectorate's limited capacity has been a significant factor in the lengthy process of regulating halal certification. The authorities in Madura should provide training and competency examinations for religious figures, scholars, and practitioners, together with necessary support facilities for validation. A strong support structure for developing

halal human capital leads to a larger pool of human resources capable of supporting and contributing to society, as well as assisting entrepreneurs in promoting the significance of halal practices (Gunawan et al., 2021).

In the medium term, the Madura government can implement programs such as enhancing education quality, optimizing synergies between institutions, establishing halal management laboratories, and boosting promotion and socialization.

Firstly, enhancing the quality of education: Enhancing the education standard is a strategy that local governments in Madura can implement to cultivate halal human capital. This pertains to the significance of human resource literacy in fostering the growth of halal human capital. Local governments can enhance the quality of education by bolstering courses on halal, digital economy, and research and development (Aslam et al., 2023).

Second, the development of human capital halal in Indonesia can also be achieved through the implementation of strategies by the regional administration of Madura, including the utilization of interagency networks and synergies.

Thirdly, one tactic the Madura local government might use to advance the development of halal human capital in Indonesia is setting up a halal management laboratory. It has to do with bolstering governance, regulations, and fatwas in Indonesia's human capital development. As a result, the local government can establish a halal value chain field management lab, which can be used as a research and development facility.

Fourthly, the local government can use increased promotion and socializing as a strategy in light of Indonesia's growing halal lifestyle, which has the potential to generate a strong domestic market. Thus, by endorsing halal products on social media or working with UMKM to produce better products, local governments can boost socialization and promotion.

The long-term plan is to improve halal training programs, specialized certification facilities, and capacity growth. Enhancing the caliber of human resources by training in halal and capacity building would contribute to raising the quality of SDM and halal goods in Indonesia. Furthermore, knowledgeable certification facilities will support the guarantee that halal products are made in compliance with the norms of the halal value chain.

4 Conclusion

The study revealed that Madura should capitalize on internal strengths and external factors, primarily the support of the government and commitment, to grow halal human capital. The internal and external strength aspects provide a plan for solving the primary issue of low literacy and awareness in the halal business in Madura's human capital development. Furthermore, the main contributing element is the negative stigma that

develops around halal challenges, mainly due to the challenging and expensive certification charges.

The strategy for developing halal human capital is divided into three stages: short-term, medium-term, and long-term. In the short term, the most important objective is to finalize the halal ecosystem infrastructure. In the medium term, the Madura government can implement initiatives such as enhancing the quality of education, optimizing synergies and networks between institutions, establishing halal management laboratories, and enhancing promotion and socialization. Long-term initiatives include enhancing capacity building, enhancing halal training programs, and increasing expert certification facilities.

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