Development strategy of small and medium food industry in Tangerang City with SWOT and AHP methods

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Abstract. The study was conducted to formulate a strategy for developing SMEs Food in the City of Tangerang. The SWOT Matrix calculation results in the position of Tangerang City's SMEs Food being in quadrant II so that the positioning must be carried out in an optimal development strategy. There are four possible alternatives for the development strategy of the City SMEs Food, namely: Improvement of the quality of production results in order to make products competitive, Support of available raw materials to continue to innovate products and to make products that are competitive, Improvement a partnership between suppliers, customers and competitors by ensuring the availability of human resources through government support, Increasing production development and creating products using appropriate technology. These four strategies will be considered using the AHP method so as to determine the best decision. Based on the weighted pair wise comparisons, the priority value of each strategy is 0.376 (S1); 0.128 (S2); 0.147 (S3) and 0.349 (S4). The biggest weight value is found in the S1 strategy of 0.376. So that the development strategy that becomes the main priority based on SWOT indicators and AHP weighting is the improvement of the quality of production results in order to make a competitive product.

1. Introduction

Small and Medium Industries (SMEs) play an important role in economic development especially in Indonesia, where SMEs have become the main source of job creation and production growth [1]. In addition, SMEs also produce various types of products, can penetrate to a wider market, can provide a source of income for the wider community, and have more resilience to the economic crisis. Regarding these characteristics, it is important that the development of SMEs can produce a strong and developed community-based economy [2]. Improvement of human resources and technology in SMEs for food is needed so as not to lag behind current technological developments [3]. Economic development strategies in a region can be done by promoting entrepreneurship and encouraging the growth of small industries [4].

Industrial growth in the Tangerang City reached 8.48 percent and contribution from the processed industry was 14.5 percent. The existence of the processed industry is very beneficial for the City of Tangerang, being able to absorb labor, is also a sector that is able to contribute to economic growth. Table 1 shows the number of food SMEs in 13 districts in the city of Tangerang.
Table 1. Number of food SMEs in Tangerang City [15]

| No | Sub-district   | Number of SMEs |
|----|----------------|----------------|
| 1  | Bateepeper     | 262            |
| 2  | Benda          | 148            |
| 3  | Cibodas        | 180            |
| 4  | Ciledug        | 82             |
| 5  | Cipondoh       | 284            |
| 6  | Jatiuwung      | 36             |
| 7  | Karang Tengah  | 5              |
| 8  | Karawaci       | 103            |
| 9  | Larangan       | 5              |
| 10 | Neglasari      | 86             |
| 11 | Periuk         | 27             |
| 12 | Pinang         | 110            |
| 13 | Tangerang      | 304            |
|    | Total SMEs of Food | 1632       |

As for some of the products produced by SMEs which are typical of Tangerang City as follows:

![Food products SMES Tangerang City](image)

Figure 1. Food products SMES Tangerang City

Industry Potentials that are close to the Capital City, SMEs Food of Tangerang City has not been developed optimally. Development that has not been optimal is caused by several factors including in terms of limited human resources (HR), capital capacity, product technology and product introduction [5].

The problems faced by SMEs are lack of capital, difficulties in marketing, simple organizational structure with non-standard division of labour, low quality management, limited human resources, and low quality, most do not have financial reports, weak legality aspects and low quality of technology [6] [7][8]. The purpose of this study is to determine the best development strategy of SMEs Food Tangerang City.

2. Method

This research was conducted at the Small and Medium Food Industry in the City of Tangerang. The selection of respondents is determined directly based on their interest in the problem under study and have knowledge or understanding of the problem. Respondents (experts) were asked to fill in SWOT and AHP questionnaire data, namely the City of Tangerang Industry and Trade Office, Respondents, Tangerang City SMEs Food Entrepreneurs, and Academics who were concerned about regional economic development including the development of SMEs. SWOT analysis is the systematic identification of various factors to formulate a company's strategy [9, 10]. This analysis is based on logic that can maximize strengths and opportunities, but simultaneously can minimize weaknesses (weaknesses) and threats (threats).

AHP is one method to help set priorities from various choices by using several criteria (multi criteria). Because of its multi-criteria nature, AHP is quite widely used in priority setting. In addition to being multi-criteria, AHP is also based on a structured and logical process [11, 12].
The combination of the SWOT-AHP factor is a use of a hierarchical structure for the strategic planning process based on the SWOT study, as well as the use of quantitative techniques to estimate the value of ideal strategy efficiency for each of the proposed strategies [13, 14, 16].

3. Result & Discussion
The method used is the SWOT and AHP analysis. SWOT analysis is used to identify external and internal factors that influence a company’s potential. Whereas AHP is used to determine priority development strategies for companies.

3.1. SWOT Analysis
SWOT analysis needs to look at internal factors and existing external factors. Internal factors are influenced by natural resources, labor, technology, and capital. Where internal factors consist of Strength and Weakness of the SMEs Food City of Tangerang. External factors are influenced by competitors, social behavior of the community and related agencies. Where external factors consist of Opportunities, and Threats from the City of SMEs Food Tangerang. The following are internal factors or Internal Factor Analysis Summary (IFAS) and external factors or External Factor Analysis Summary (EFAS).

3.2. Internal Factor Analysis Summary
Internal strategy analysis Strengths and Weaknesses of the company then assigns values and weights based on the results of questionnaires and interviews with internal respondents. The IFAS results are recapitulated as can be seen in the following Table 2.

| Code | Internal Factors                                              | Weight | Rating | Score |
|------|---------------------------------------------------------------|--------|--------|-------|
|      | **Strengths (S)**                                             |        |        |       |
| IF 1 | Product Innovation                                           | 0.07   | 3.50   | 0.26  |
| IF 2 | Technology Support                                           | 0.07   | 2.67   | 0.18  |
| IF 3 | Availability of Raw Materials                                | 0.06   | 3.33   | 0.21  |
| IF 4 | Good and Quality Products                                    | 0.07   | 3.50   | 0.25  |
| IF 5 | Having a good regional carrying capacity for development      | 0.07   | 3.17   | 0.22  |
| IF 6 | Availability of infrastructure and economic production facilities | 0.06   | 2.67   | 0.15  |
| IF 7 | Having an Enough Network for Marketing                       | 0.07   | 2.83   | 0.19  |
| IF 8 | The selling price of the product is relatively the same as competitors | 0.07   | 2.00   | 0.14  |
|      | **Total Factor Strengths (S)**                               |        |        | 1.59  |
|      | **Weaknesses (W)**                                           |        |        |       |
| IF 9 | The quality of labour is low                                 | 0.06   | 2.50   | 0.14  |
| IF 10| Lack of Capital                                              | 0.07   | 2.67   | 0.20  |
| IF 11| Management is not optimal                                    | 0.06   | 2.67   | 0.15  |
| IF 12| Lack of Marketing Ability                                    | 0.06   | 2.17   | 0.13  |
| IF 13| The low quality of service                                   | 0.06   | 2.00   | 0.12  |
| IF 14| Understand new product strategies at every level of business | 0.06   | 2.83   | 0.16  |
| IF 15| Duration of the New Product Development Process              | 0.05   | 2.67   | 0.14  |
| IF 16| Weak Packaging Design Mastery                                | 0.06   | 2.00   | 0.12  |
|      | **Total Factor Weaknesses (W)**                              |        |        | 1.14  |
|      | **Total**                                                    |        |        | 2.72  |
Based on IFAS Table 2 above, it can be seen that Product Innovation is the biggest strength of the development of the Tangerang City Food SMEs with a weight of 0.09. So based on the results of the IFAS matrix is 2.56. Thus, the food SMEs in Tangerang City actually has a considerable strength appeal, but there needs to be an effort to improve the weaknesses that exist in the Mastery of Packaging Design.

3.3. External Factor Analyze Summary
The external strategy analysis of Opportunities and Threats also continues at the same steps as at IFAS. The result of EFAS is a recapitulation as can be seen in the following Table 3.

| Code | External Factors                                      | Weight | Rating | Score |
|------|-------------------------------------------------------|--------|--------|-------|
| EF 1 | Packaging Design Development                          | 0.06   | 4.00   | 0.22  |
| EF 2 | Provision of Technical Skills Guidance                | 0.06   | 3.83   | 0.22  |
| EF 3 | The public is encouraged to use domestic products     | 0.07   | 3.00   | 0.20  |
| EF 4 | Number of Standardized and Certified Small Industrial Products | 0.06 | 3.17   | 0.20  |
| EF 5 | Community support for business activities             | 0.06   | 2.50   | 0.14  |
| EF 6 | New Technology that Supports Products                  | 0.05   | 3.00   | 0.16  |
| EF 7 | Increased Development of potential industrial centre  | 0.05   | 3.50   | 0.18  |

Table 3. Continue

| Code | External Factors                                      | Weight | Rating | Score |
|------|-------------------------------------------------------|--------|--------|-------|
| EF 8 | Improvement of Industrial Technology Capability        | 0.06   | 3.50   | 0.21  |
| EF 9 | Coaching in obtaining PIRT and Halal Certificates       | 0.07   | 3.50   | 0.24  |
| EF 10| Fostering the Use of Industrial Management Information Systems for Online Marketing | 0.06 | 3.17   | 0.19  |

Total Factor Opportunities (O) 1.95

| Code | External Factors                                      | Weight | Rating | Score |
|------|-------------------------------------------------------|--------|--------|-------|
| EF 11| Limited SMEs facilities                               | 0.05   | 2.50   | 0.12  |
| EF 12| The level of trade competition is increasing          | 0.05   | 3.33   | 0.17  |
| EF 13| Business partnerships between trading businesses have not been optimal | 0.05 | 2.67   | 0.13  |
| EF 14| The level of business competition and the quality of economic products are increasingly competitive | 0.05 | 3.17   | 0.17  |
| EF 15| Financing Issues                                      | 0.05   | 3.00   | 0.16  |
| EF 16| Increase in Raw Materials                             | 0.06   | 3.50   | 0.20  |
| EF 17| Foreign Product Substitution                          | 0.05   | 2.67   | 0.12  |
| EF 18| A fast changing market                               | 0.06   | 3.00   | 0.17  |

Total Factor Threats (T) 1.23

Total 1.00 3.18

In external factors, the biggest weight is given to the Development of Packaging Design and Provision of Technical Skills Guidance with a weight of 0.07. Based on these calculations, an EFAS value of 3.09 was obtained. This means that changes in these external factors have a fairly high level of attractiveness towards the development of the City of Food SMEs in Tangerang. When compared with the value of IFAS, where the value of IFAS is smaller than the value of EFAS, it shows that the development of Food SMEs in Tangerang City has a strong ability to deal with external changes.

3.4. IE Matrix Analysis
After obtaining the total score from the IFAS matrix of 2.56 and the score value of the EFAS matrix of 3.09, the results of these scores can indicate the position of the IKM Food in Tangerang City through the IE matrix. The IE matrix for Food SMEs is shown in Figure 2.
Figure 2. Matrix IE

Figure 2 shows that the position of Food SMEs in Tangerang City is in Quadrant II (grow and build), which has medium internal and strong external capabilities. Companies that enter this quadrant should be managed with an intensive strategy (market penetration, market development, and product development) or integrative strategy (backward integration, forward integration, and horizontal integration). A summary of the strategy for developing SMEs Foods in Tangerang City can be seen in Table 4.

Table 4. Formula for food SMEs development strategy in Tangerang City

| Strategy S-O | Strategy W-O |
|--------------|--------------|
| • Increasing the quality of production results in order to make products that are competitive. | • Provide skills training for the workforce |
| • The support of raw materials available to continue to innovate products and can make products that are competitive. | • Utilizing internet information as a promotional tool |
| • Increasing the fabric of partnerships between suppliers, customers and competitors by ensuring the availability of human resources through government support | • Improve the production process that is more efficient and new technology |
| • Improve production development strategies and create products using appropriate technology | |

| Strategy S-T | Strategy T-W |
|--------------|--------------|
| • Maintaining existing quality | • Providing capital loans to IKM Food |
| • Create a product to make it more attractive | • Innovating and creating creative products |
| • Product design and innovation development | • Make a strategy in promoting the product |
| • Increase customer satisfaction by improving product quality | |

In order for the Tangerang City SMEs Food to develop, an appropriate strategy is needed. Based on the table above, the development strategy can be influenced by internal and external factors. Where the combination of these two factors is then obtained by a development strategy for SMEs.

3.5. Analytical Hierarchy Process

After obtaining a strategy from the SWOT matrix. The next step is to determine the priorities of each of the existing development strategies. This priority determination uses the AHP method. The four development strategies produced based on SWOT are then arranged into a hierarchical structure.
The hierarchical structure consists of objectives, criteria, sub criteria and alternatives. The purpose of the research is to determine the strategy of developing the City of SMEs Food Tangerang. In the AHP method, a pairwise comparison between criteria, sub-criteria, alternative criteria, and alternative criteria will be weighted. Pairwise comparisons will produce eigen vectors which are priority values of each criterion, sub criteria and alternatives. The resulting priority value will be taken into account in determining the best alternative.

**Figure 3. SWOT-AHP hierarchy for SMES development**

| No | Criteria                        | Weight | Sub-criteria                  | Weight | Local Rank |
|----|---------------------------------|--------|-------------------------------|--------|------------|
| 1  | Research and development (R&D)  | 0.332  | Production Technology (A1)    | 0.750  | 1          |
|    |                                 |        | Information (A2)              | 0.250  | 2          |
| 2  | Human Resources (SDM)           | 0.182  | Quality of HR (B1)            | 0.800  | 1          |
|    |                                 |        | HR Quantity (B2)              | 0.200  | 2          |
| 3  | Access Factors of Production (AFP) | 0.398 | Facilities and infrastructure (C1) | 0.166  | 3          |
|    |                                 |        | Capital (C2)                  | 0.601  | 1          |
|    |                                 |        | Raw material (C3)             | 0.225  | 2          |
| 4  | Linkages (L)                    | 0.088  | Network (D1)                  | 0.667  | 1          |

In brief, to see the results of the order of weights of each criterion determining the priority of the development of Food SMEs can be seen in the bar chart weights the criteria below.
4. Conclusion

Based on the results of the research, the first priority strategy for developing small and medium food industries in the City of Tangerang lies in the strategy of improving the quality of production results in order to make a competitive product (Strategy 1) with a value of 0.376 then followed by a strategy of increasing production development and creating products using appropriate technology (Strategy 4) with a weight of 0.349, followed by a strategy to increase the partnership between suppliers, customers and competitors by ensuring the availability of human resources through government support (Strategy 3) with a weight of 0.147. Strategy The availability of raw material support is available to continue to innovate products and can make products that are competitive (Strategy 2) with a weight of 0.128. Thus Strategy 1 is a priority strategy for developing small and medium industries with the highest global priority and more importantly implemented. This strategy is supported by the existence of production technology, quantity of HR, capital, and network.

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