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Swot Analysis and ANP for Organic Tempeh SME Business Development Strategy

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ABSTRACT

Purpose: Therefore, in this study, SWOT analysis is used to formulate problems from internal and external factors, from developing alternative strategies, selecting and making strategic decisions that align with company goals.

Design/methodology/approach: At the same time, the Analytical Network Process (ANP) is used to weigh each alternative strategy so that the strategy with the highest priority weight can be identified.

By using Super Decision software, the best alternative strategy for Soya Agung is to promote promotion and education with a weight of 0.214760.

Findings: An industry that can compete in the modern market has the right marketing strategy. As a Small and Medium Enterprise producing tempeh, whose raw material is non-genetic modified local soybeans, Soya Agung still has limitations in marketing its products.

Research limitations/implications: The integration of SWOT and ANP is expected to produce strategic plans that can provide various alternative marketing strategies that can help solve company problems.

Paper type: Research paper

Keyword: ANP, Strategy, SWOT, UKM, Weight.
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I. INTRODUCTION

Tempeh is one of the most popular and prospective sources of vegetable protein on the market. Tempeh is an alternative to meat rich in fibre, calcium, high in protein, vitamin B12, and iron (Biogen.litbang.pertanian.go.id 2017). The content in tempeh is like an antibiotic to recover from the infection and as an antioxidant to overcome various degenerative diseases. Antibacterial compounds are also found in tempeh made during the fermentation process (Wisnu Cahyadi 2007).

Although making tempeh is very simple, it turns out that tempeh's quality depends on the type of soybean and other raw materials used (Tanuwidjaja et al. 2017).

In general, there are two types of soybeans used as raw materials for tempeh, namely local and imported soybeans. Local soybeans have many advantages over imported soybeans: taste, aroma, and freshness (Kompas 2011). Tempeh, whose raw material comes from local soybeans, tastes better than imported soybeans. The freshness of local soybeans is also better maintained because they are processed directly after harvest, while imported soybeans are usually stored for years (Adisarwanto 2009). Another advantage is that

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local soybean seeds are naturally cultivated organically without pesticides than imported soybeans, primarily genetically engineered seeds (Biogen.litbang.pertanian.go.id 2017). The better quality of local soybeans than imported soybeans is a plus point that can help the government realize national nutrition improvements.

Table 1. Nutritional Content of Tempeh

Nutritions	*Unit*	*Nutritional composition of 100 grams BDD*
Energy	*(Kal)*	*201*
Protein	*(gram)*	*20.8*
Fat	*(gram)*	*8.8*
Carbohydrate	*(gram)*	*13.5*
Fibre	*(gram)*	*1.4*
Ash	*(gram)*	*1.6*
Calcium	*(mg)*	*155*
Phosphor	*(mg)*	*326*
Iron	*(mg)*	*4*
Carotene	*(mkg)*	*34*
Vitamin B1	*(mg)*	*0.19*
Water	*(gram)*	*55.3*
*BDD**	*(%)*	*100*

Source: Ministry of Health RI, Community Nutrition and Center for Nutrition Research, 2004

**BDD = Edible weight*

Table 2. Average Consumption of Tempeh per Capita in a Week

Year	*Tempeh Consumption in kg*
2007	*0.153*
2008	*0.139*
2009	*0.135*

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2010	*0.133*
2011	*0.140*
2012	*0.136*
2013	*0.136*
2014	*0.133*
2015	*0.134*
2016	*0.141*
2017	*0.147*
2018	*0.146*
2019	*0.139*

Source: processed from the Indonesian Statistical Publication

Data from the Central Statistics Agency (BPS) in the 2018 National Economic Survey (SUSENAS) report states that tempeh consumption in Indonesia reaches 625 grams/month per capita (Bkp.pertanian.go.id. 2018).

lThe tempeh industry also can become a big industry because tempehh has been legalized as a new work item at the CAC (Codex Alimentarius Commission) since 2011. With the recognition of the proposed Indonesian tempeh standard, the opportunity for tempeh to go international should be wide open (Nasional 2012). Tempeh products have a significant market share. Apart from entering traditional markets, supermarkets and other modern markets are also starting to accept them. Even some SMEs have succeeded in selling tempehh abroad, making production and marketing there (Suparjo, & Hariastuti 2017). With these data, it should be a vast opportunity for tempeh industry SMEs to market their products, but it turns out to be different from the facts on the ground. The number of tempeh-making industries makes this business competition very tight. As one of the SMEs engaged in the tempeh industry, Soya Agung still has many limitations in terms of marketing. The business is stagnant, no progress, and the burden grows because there are teams and employees. It is also because the tempehh produced is made from local natural soybeans, non-genetically engineered (Non-GMO).

It should be noted that the price of local soybeans is higher than imported soybeans, thus affecting the selling price. Even though this local soybean raw material is highly nutritious, healthier, and tastes better quality, organic tempehh produced by Soya Agung is still having trouble penetrating the market. It is because the selling price is higher than tempehh made from imported soybeans. The community also needs education to find out which tempeh products are safe and healthy for consumption.

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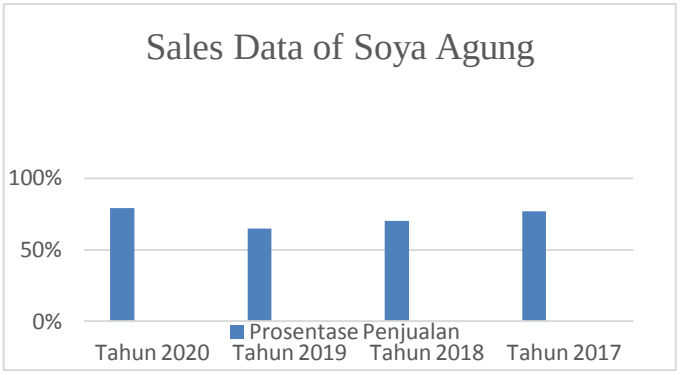

Figure 1. Sales Data of Soya Agung

Translation:
1. The year 2020
2. The year 2019
3. Year 208
4. The year 2017
5. Percentage of Sales

These problems can be solved by conducting marketing research beforehand to determine what consumers want and develop better marketing strategies. According to Hamel (1995), strategy is an effort carried out continuously and constantly increasing. Business includes how to find information about consumer desires. The occurrence of a very dynamic global market development and changes in buyer behaviour requires core competencies. Companies must look for core competencies in the business they do. It means that the company must be able to use all the power of its resources as much as possible. These resources include equipment, an extensive marketing distribution network, the use of superior quality raw materials, and a good product image.

A company must have an excellent strategy to overcome external threats and take advantage of opportunities. It requires careful strategic planning through the strategy's analysis, formulation, and evaluation to see internal and external conditions objectively. With good strategic planning, companies can cope with changes in the external environment. Strategic planning is critical for companies to find competitive advantages and products that meet consumer expectations.

This study uses the SWOT method to formulate problems ranging from internal and external factors, develop alternative strategies, determine the best approach following company goals. This method will bring up various criteria that become the company's strengths that will be maximized and take advantage of opportunities while simultaneously suppressing weaknesses and the impact of threats that must be faced (Akdon 2007).

Meanwhile, the relative importance of each SWOT factor and sub-factor is calculated using the Analytical Network Process (ANP) by considering the dependence between the SWOT factor and sub-factor and the relationship between the criteria. So to make essential decisions among various alternatives, you can use the results of the ANP calculation (Ismail. 2011).

The integration of SWOT and ANP is expected to produce strategic plans that can provide the best alternative for business development to achieve company goals optimally.

There have been several previous studies in Tempeh SMEs using the SWOT method, such as the SWOT analysis on the Malang Amel Tempeh Chips SMEs (Anggraeni and Kholid Mawardi 2017), the Tempeh Marketing Strategy Analysis in Medan (Donny Ivan Samuel Simatupang 2019), the Tempeh Chips Marketing Strategy in Klaten (Hasnah, Kusnandar, and Setyowati 2020). Unfortunately, no one is accompanied by other methods, such as ANP, to determine the strategy's priority with the highest weight. The primary difference found in this study and various previous studies is that the alternative marketing strategies of Soya Agung, and other producers who produce tempehh from local soybeans, are unique compare to those who use import soybeans.

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II. METHODOLOGY

A. SWOT Analysis As a Strategy Formulation Tool

SWOT analysis is a strategic planning tool that identifies various internal and external factors to obtain different alternative corporate strategies. The analysis is based on the thoughts and conditions of using Strengths and Opportunities to the fullest and reduce Weaknesses and Threats. The determination of various alternative strategies must align with the company's vision, mission, goals, strategies, and policies (Rangkuti 1999).

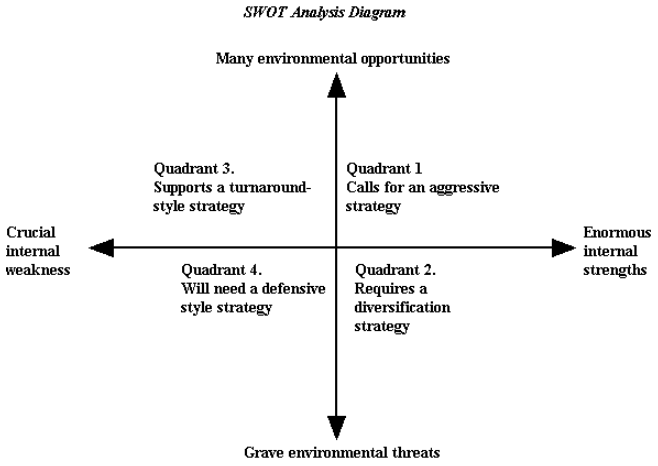

Figure 1. SWOT Analysis Chart (Rangkuti 1999)

Determining various alternative strategies is carried out in three stages of analysis, namely the stage of data collection, data analysis, and decision-making (Rangkuti 1999).

Table 3. Strategic Formulation Diagram (Rangkuti 1999)

Data Collection Stage		
External Factor Evaluation	*Internal Factor Evaluation Profile Matrix*	*Competitive*
Data Analysis Stage		
Tows Matrix	*Bcg Matrix*	*Internal-External Matrix*
Space Matrix	*Grand Strategy Matrix*	
Decision-Making Stage		
Quantitative Strategic Planning Matrix		

B. Analytical Network Planning (ANP)

The ANP method is one of the methods included in the Multi-Criteria Decision Making (MCDM), which develops the AHP method. Both of these methods use a pairwise comparison system to assign weights. The difference is, in AHP, the elements do not have a dependency and are considered independent. Whereas in ANP, the opposite is true. Each aspect is interdependent with other components (Saaty 2003). In this study, primary data used interviews with decision-makers in the company, the production department, and the marketing department. Secondary data is taken from the results of questionnaires distributed to

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respondents in the field. Data involving respondents will be processed using the ANP method to produce absolute numbers (Aziz and Chok 2013).

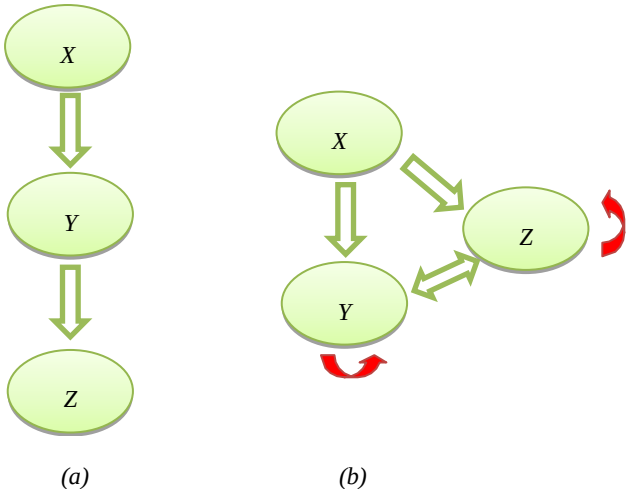

Figure 3. (a) AHP Structure (b) ANP Structure

C. Combination of SWOT dan ANP

The combination of SWOT and ANP methods in the decision-making process is expected to provide various alternative marketing strategies that can help solve company problems. The steps taken in the application of the SWOT and ANP methods are as follows:

a. Soya Agung makes a SWOT Analysis using the IFE and EFE Matrix, which will bring up various criteria.
b. The criteria that emerge from the SWOT variable are derived from questionnaire data and processed again to obtain alternative strategic decisions.
c. These strategic decisions are then weighted using the ANP method to identify the strategy with the highest priority weight.

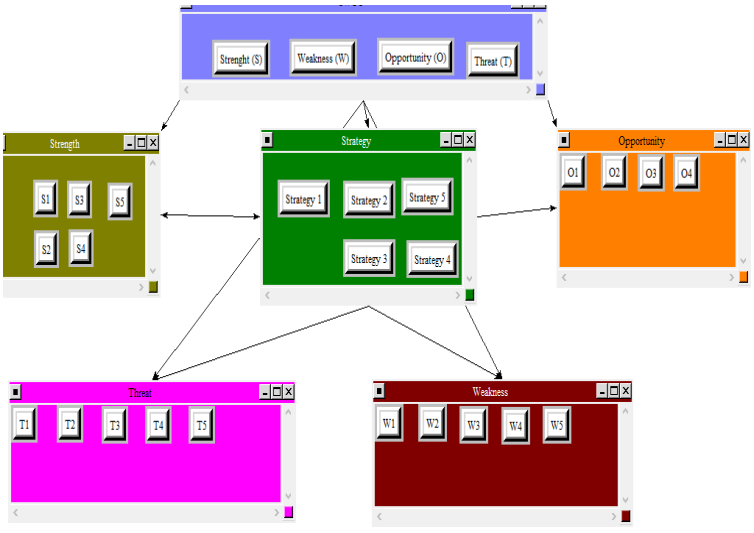

Figure 4. ANP Matrix Model

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III. RESULTS AND DISCUSSION

A. SWOT Matrix

The following is a SWOT analysis matrix for internal indicators (strengths and weaknesses) in Soya Agung's business development strategy.

Table 3. Internal Factor Evaluation (IFE) Matrix

Symbol	*Internal Indicator*	*Weight*	*Rating*	*Total*
S1	*Tempeh consumption is quite high in Indonesia*	*0.11*	*4.00*	*0.44*
S2	*Pesticide-free local soybean raw material (non-GMO)*	*0.11*	*3.00*	*0.33*
S3	*Taste better and healthier*	*0.11*	*4.00*	*0.44*
S4	*Already have loyal customers*	*0.11*	*2.00*	*0.22*
S5	*Carrying the concept of healthy & sustainable (sustainable consumption)*	*0.11*	*3.00*	*0.33*
W1	*Lack of public promotion & education*	*0.11*	*3.00*	*0.33*
W2	*Unattractive packaging*	*0.11*	*2.00*	*0.22*
W3	*Lack of product innovation*	*0.11*	*3.00*	*0.33*
W4	*Lack of building partnerships with suppliers*	*0.11*	*2.00*	*0.22*
	Total	*1.00*		*2.86*

Table 3 shows a weight of 0.11, which is calculated from the total divided by nine internal indicators. At the same time, the rating is obtained from the results of the questionnaire. The total value is calculated from the weight x rating, and a total of 2.86 is received in the IFE matrix.

Table 4. External Factor Evaluation (EFE) Matrix

Symbol	*External Indicator*	*Weight*	*Rating*	*Total*
O1	*The largest soybean market in Asia (BSN, 2012)*	*0.13*	*4.00*	*0.50*
O2	*Not many local soybean tempeh industry players*	*0.13*	*4.00*	*0.50*
O3	*People are becoming aware of the health*	*0.13*	*2.00*	*0.26*
O4	*High nutritious, cheap food*	*0.13*	*4.00*	*0.50*
O5	*Domestic traditional and modern markets are wide open*	*0.13*	*2.00*	*0.26*
T1	*Limited local soybean suppliers/supply*	*0.13*	*2.00*	*0.26*
T2	*Local soybean prices are more expensive*	*0.13*	*4.00*	*0.50*

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T3	*Decreased quality due to the influence of the fermentation phase on the marketing distribution time*	*0.13*	*3.00*	*0.39*
	Total	*1.00*		*3.17*

The IE matrix in Figure 5 below is obtained from total IFE matrices 2.86 and the EFE matrices 3.17.

Table 5. IE Matrix of Soya Agung

		Total average IFE		
		Strong (3.0-4.0)	*Medium (2.0-2.99)*	*Weak (1.0-1.99)*
Average total EFE	*Strong (3.0-4.0)*	*I*	*II*	*III*
	Medium (2.0-2.99)	*IV*	*V*	*VI*
	Weak (1.0-1.99)	*VII*	*VIII*	*IX*

Table 6. Soya Agung SWOT Matrix

Swot	*Strength*					*Weakness*			
Matrix	*S1*	*S2*	*S3*	*S4*	*S5*	*W1*	*W2*	*W3*	*W4*
Opportunity									
O1						*Wo Strategy*			
O2			*So Strategy*			*Promote Promotion & Education (W1, O1, O3, O5)*			
O3			*Tempeh Standard Development (S2, S5, O1, O5)*			*Attractive & Hygienic Packaging (W2, O2)*			
O4						*National Standard Labelling (W3, O4)*			
O5									
Threats									
T1			*St Strategy*			*Wt Strategy*			
			Customer Maintenance (S4, T3)			*Increase Innovation (W3, T3)*			
T2			*Empowerment Of Local Soybean Farmers (S2, T1, T2)*			*Partnering With Suppliers (W4, T1, T2)*			
T3									

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The following are the results of data processing with the ANP method using Super Decision software.

Table 6. Pairwise ANP results

Name	*Normalized by Cluster*	*Limiting*	*Name*
O1	*0.46833*	*0.358905*	*O1*
O2	*0.09339*	*0.071558*	*O2*
O3	*0.04045*	*0.030993*	*O3*
O4	*0.24784*	*0.189933*	*O4*
O5	*0.14999*	*0.114936*	*O5*
Strategy 1	*0.14691*	*0.113537*	*Strategi 1*
Strategy 2	*0.32433*	*0.214760*	*Strategi 2*
Strategy 3	*0.10796*	*0.002873*	*Strategi 3*
Strategy 4	*0.10550*	*0.002513*	*Strategi 4*
Strategy 5	*0.04169*	*0.000724*	*Strategi 5*
Strategy 6	*0.03613*	*0.000691*	*Strategi 6*
Strategy 7	*0.21313*	*0.182411*	*Strategi 7*
Strategy 8	*0.02435*	*0.000436*	*Strategi 8*
S1	*0.46979*	*0.009505*	*S1*
S2	*0.10770*	*0.002177*	*S2*
S3	*0.22413*	*0.004537*	*S3*
S4	*0.03854*	*0.000781*	*S4*
S5	*0.15985*	*0.003238*	*S5*

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Table 7. The weighting of ANP on Soya Agung

	Alternatives	*Weight*
Strategy 1	*Tempeh standard development*	*0.113537*
Strategy 2	*Promote promotion & education*	*0.214760*
Strategy 3	*Attractive & hygienic packaging*	*0.002873*
Strategy 4	*National standard labelling*	*0.002513*
Strategy 5	*Customer maintenance*	*0.000724*
Strategy 6	*Empowerment of local soybean farmers*	*0.000691*
Strategy 7	*Increase product innovation*	*0.182411*
Strategy 8	*Partnering with suppliers*	*0.000436*

IV. CONCLUSION

The weighting results using the ANP method indicate that the best alternative strategy for Soya Agung UKM is to promote promotion and education to make people more familiar with local soybean tempeh with a weight of 0.214760.

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