

Identifying elements of mushroom business development in Malang City with a Canvas model approach

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ABSTRACT

The mushroom agroindustry has a profitable business opportunity for farmers because it is easy to cultivate, needs short planting time, and does not require extensive planting land. Moreover, the price of post-harvest products is quite high. To face increasingly intense competition, mushroom agroindustry actors need to implement strategic management to increase business competitiveness. The purposes of this study are to identify a business model using the business mode canvas (BMC) approach, analyse the internal and external factors of mushroom agroindustry and formulate alternative business development strategies using SWOT analysis. The result shows that the business model of mushroom agroindustry viewed by nine elements of BMC. By SWOT analysis, mushroom agroindustry has internal strength in its business that is on clear consumer segmentation (0.650). The weakness is anticipating the fewer consumers' enthusiasm toward healthy food products (0.500). The opportunity of mushroom agroindustry is optimizing the online market (1.200). The threat is competitors from other food products (0.525). Some alternatives of developing the business are based on hold and maintain position consists of four combined strategies: developing and increasing product quality (SO), increasing promotion and services (ST), marketing the products by social media (WO), and evaluating the quality of business relationship (WT).

Introduction

Harvesting mushroom products have more prospects to be expanded, along with the awareness of its nutritional value as a substitute for animal protein sources. Hence, the rate of mushroom consumption is continuously to increase. In 2018 the rate of consumption of Indonesian mushrooms was estimated at around 47,753 tons with a consumption rate of 0.18 kg per capita per year, while Indonesia's production was estimated at 37,020 tons. There is an opportunity to increase mushroom production in Indonesia. The average export of mushrooms to foreign countries is 5,300 tons with a transaction value up to 9 million USD (Simanjuntak, 2018). Indeed, it provides income, thus increasing the country's foreign exchange. Therefore, the domestic consumption mushroom business opportunity is still widely open. In East Java, Malang Raya is one of the fast-growing mushroom agroindustrial centres. According to the

Indonesian Statistics (2018), mushroom production in Malang in 2017 reached 4,702 tons. It will also support the development of industrial sector activities and the mushroom processing business. Oyster mushroom processing agroindustries in Malang have been existed since 2002. But, these agroindustries were started to significantly expand in 2010 and about 20 micro-, small- and medium enterprises (MSMEs) are still active per 2019, with an average turnover of IDR 10,742,105.26 (Citraresmi et al., 2019).

The main factor that inhibits the development of the mushroom processing agroindustry was the limited supply of mushroom. Despite many mushroom farmer groups are existed currently, the mushroom production is still not be able to meet the consumer's demand. This was triggered by various problems as follows: (1) limited knowledge of mushroom farmers in making oyster mushroom baglog media; (2) limited knowledge in the

development of oyster mushroom cultivation; and (3) capital problems in supporting oyster mushroom cultivation activities (Kushwah and Chaudhary, 2015). Research conducted by Rini and Amaliyah (2019) recommended various strategies to create value added for the mushroom industry, include: (1) expanding marketing areas and conducting promotions; and (2) developing oyster mushroom-based processed food products such as mushrooms chips, crispy mushrooms, and etc.

Several studies refer to the marketing strategy as an effort to improve the performance of the mushroom industry. For instance, Shirur and Chandregowda (2017) highlighted the SWOT matrix as a tool to recommend alternative strategies and Gurgen et al. (2018) using analytic hierarchy process (AHP) as a tool to evaluate marketing strategies in the research area. Another study by Afifa and Santoso (2018) used Fuzzy-ANP to produce alternative marketing strategies. While, Datta and Das (2019) used the quantitative strategic planning matrix (QSPM) as the final stage of formulating alternative strategies. However, the marketing strategy is not enough to face the global market competition. The application of marketing strategy conventionally cannot fully help companies to be optimally expanded. This is because the marketing strategy is only focused on one aspect. Yet, building and developing business need to have a clear target and consider various aspects such as the design of business models and relevant stakeholders (Amit and Zott, 2012).

To face an increasingly fierce market competition, mushroom agroindustry actors need to apply strategic management as an effort to increase business competitiveness (Karel et al., 2013). Such measures may enable the business to survive. A well-designed strategy can create a competitive advantage. Therefore, it is necessary to apply business development methods and strategies that are suitable for the business to overcome the problems experienced. The development strategy can be optimised through strengthening business potential, by analysing business potential and problems and by formulating a development strategy (Prihatminingtyas et al., 2014). The Business Model Canvas (BMC) is a method for discussing the creation of a simple and relevant business model. BMC is a very useful model in developing business plans, especially for small and medium enterprises (SMEs) (Tokarski et al., 2017). To identify the strengths and weaknesses of the business and to map a development strategy based on "The nine building blocks", the BMC method can be combined with a SWOT analysis. SWOT

analysis is systematically used for identifying various factors as the basis for the formulation of a company development strategy (Pazouki et al., 2016). The purposes of this study were to (1) identify a business model using the BMC approach, (2) analyse the internal and external factors of mushroom agroindustry using SWOT analysis, and (3) formulate alternative business development strategies based on the SWOT analysis's results.

Research Methods

The research was conducted from April to December 2020. The research location was determined purposively; include mushroom agroindustry located in Malang City and Malang Regency. This research used a descriptive qualitative and quantitative approach.

Data Collection Technique

The technique of collecting data is the way for collecting data in the research. This research used some techniques in collecting data, such as observation, questionnaires, documentation, and document review.

1. Observation. This technique composed of in-depth interviews by Participatory Action Research (PAR) approach. Observation was aimed to collect information on existing problems and potentials objectively and directly to respondents.
2. Questionnaires and documentation. The identification of the BMC mapping was addressed to business owners, while the SWOT questionnaire was addressed to owners and practitioners. The selected respondents were expert respondents (expert judgment), who are competent and know the company as a whole. The purposive sampling method was employed to select the respondents. Purposive sampling is a sampling technique from data sources based on certain considerations (Taherdoost, 2016). Expert respondents in this study consisted of 25 people: 20 people of business owners and 5 practitioners (i.e. MSMEs offices and academics). Business owners as respondents were considered as competent and understand the real conditions and potential, of which the business can be developed. Moreover, they have important roles in the running of production activities and the creation of added value to competitive products as key activities. The practitioners (UMKM offices and academics) were selected as respondents as they know the conditions of the business and their competence

as experts in determining business development strategies.

3. Document review. This technique was carried out to collect and analyse relevant information obtained from data sources of competent authorities and other sources (books, documents, etc.).

Analysis Technique

The data collected were processed and analysed qualitatively and quantitatively. Qualitative data was for the descriptive discussion (i.e. BMC), and the quantitative data was in the tabulated form (i.e. SWOT). Data processing was done by using related processing methods include Internal Factor Evaluation (IFE) matrix, External Factor Evaluation (EFE) matrix, Internal External (IE) matrix, and the SWOT matrix. There were three steps of implementation: the input stage, the matching stage, and the decision stage (Pazouki et al., 2016), as described below.

1. The Input Stage. It consists of composing BMC, IFE matrix and EFE matrix. The compilation of BMC consists of nine elements of the business model, include customer segments, value propositions, channels, customer relationships,

revenue streams, key resources, key activities, key partnerships, and cost structure. The IFE and EFE matrices show the weight value of each internal (IFE) and external (EFE) factor.

2. The Matching Stage. It consists of compiling IE matrix. IE matrix shows the position of the company based on the weighted value of the IFE and EFE matrices. The position of the company may determine the type of business development strategy formulated.
3. The Decision Stage. It consists of developing alternative strategies based on the results of a SWOT analysis using SWOT matrix.

Results and Discussion

Business Model Canvas Mapping

The variables used in the study consisted of nine elements of BMC as a visual depiction of the business model currently run by mushroom agroindustry actors in Malang, East Java. The nine elements of BMC cover four main areas of business, such as customers, supply, infrastructure, and financial sustainability (Osterwalder et al., 2012). The BMC of the mushroom agroindustry can be seen in Figure 1.

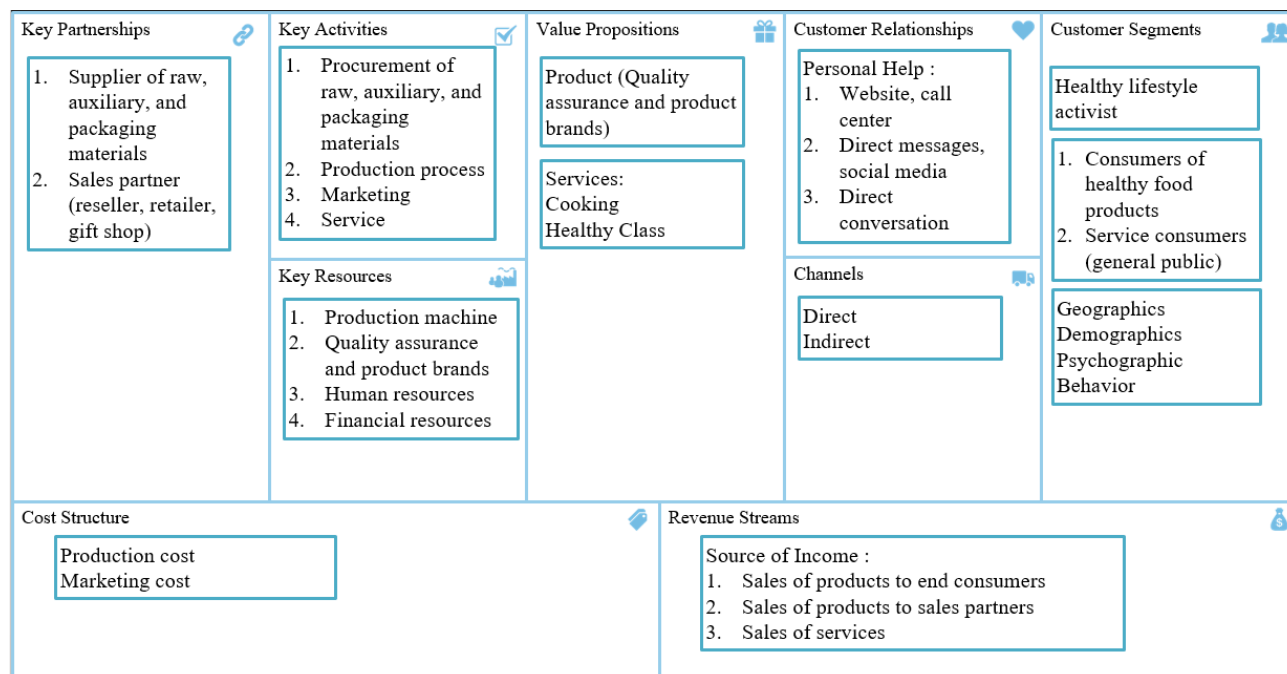


Figure 1. Business Mode Canvas of Mushroom Agroindustry

BMC mapping is useful for the mushroom agroindustry in utilising its potential and can be used as a basis for formulating alternative strategies for business development.

1. Customer segments
Mushroom agroindustry customer segmentation is broadly divided into

segmented and diversified types. A segmented customer is a group of customers with specific needs, while a diversified customer is the existence of two customer segments that are not depend of each other and have different needs (Osterwalder et al., 2012).

a. Products Customers

Products are in the form of fresh and processed products. Based on the geographical dimension, the product market coverage is national area. Based on psychographic and behavioral segmentation, the main needs of customers are healthy food products (without added preservatives).

b. Customer Service (Cooking and Healthy Class)

The purpose of this service is to educate consumers on how to process healthy food and to adopt a healthy lifestyle. Services are also used by producers as a platform for distributing products and establishing relationships with their customers (sales partners and end consumers).

2. Value Proposition

The value proposition is the unity of the various benefits that the company offers to customers for solving problems or fulfilling the customer needs (Osterwalder et al., 2012).

a. Fresh and Processed Products

Products are produced based on certain quality standards, having advantages of product quality assurance and trademarks in sales. One of the benefits is that mushroom processed products are healthy foods aimed to the customer's segment of healthy lifestyle activists.

b. Products Service (Cooking and Healthy Class)

The purpose of the service is to educate the public about a healthy lifestyle and as a soft selling medium for healthy food products. This approach allows the producers to directly convey to consumers about the values of these healthy food products, thus attracting the consumers to purchase the product.

3. Channels

The combination of direct and indirect channels is used to reach its customer's segments.

a. Direct Channels

The direct channels are one of the strengths of this business model because it has the opportunity to know customer needs

directly. The direct channels used by the mushroom agroindustry to market their products are through social media (i.e. Instagram, Facebook, Youtube) and websites, direct delivery services, and word of mouth.

b. Indirect Channels

Indirect marketing channels are carried out through collaboration with resellers, retailers, and gift shops as sales partners. These three partners could distribute products to end customers

4. Customer Relationships

Personal assistance is used in building relationships with customers. This is supported by access for customers to contact producers directly, through the contacts listed on the packaging, company website, and social media.

5. Revenue Streams

Based on customer segments, the mushroom agroindustry has several sources of income from product sales to end consumers, sales partners, and sales of the cooking and healthy class services to end consumers.

6. Key Resources

The main resources owned by the mushroom agroindustry are production facilities, product quality assurance, human and financial resources

a. Production facilities

The production facilities used in carrying out the business model are machinery and production equipment (with appropriate technology), production building, and distribution vehicles.

b. Quality assurance and product brand

The quality assurance should be owned include certificate of permission for home industry products, halal certificates, and trademarks used by the mushroom agroindustry in marketing their products.

c. Human resources

Human resources consist of owners and employees. The owner is responsible for the running of the business, while the employees are responsible for production and marketing related activities

d. Financial resources

Financial resources describe the availability of funds to running the business model such as for production and marketing costs. The availability of production funds greatly affects the availability of products in the market. Therefore, it is important to do

financial management in the mushroom agroindustry to maintain the continuity of the production process.

7. Key Activities

The key activities carried out are production and service.

a. Production and Marketing Activities

Production activities consist of procurement of raw materials, production processes with certain quality standards, and product marketing. Products include fresh mushrooms, shredded mushrooms, mushroom chips, and crispy mushrooms. Mushroom products are strongly influenced by the use of packaging materials and the packaging process carried out, given their perishable nature. The selection of packaging types and packaging methods is intended to maintain product freshness, thus it can last a relatively longer time. Marketing of mushroom products is carried out through direct sales (i.e. direct buying and selling transactions at production houses, delivery orders, and through social media) and indirect sales (i.e. collaborating with sales partners include resellers, retailers, gift shops).

b. Service Activities

The service activities provided are the cooking and healthy class services aimed to educate customers and used as a soft selling effort. This activity is important to introduce the healthy lifestyle, currently seen as increasingly promising marketing segmentation. Furthermore, this class could provide better income opportunities compared to the marketing of the processed mushroom products. While, soft selling is targeted to build trust with the potential customers.

8. Key Partnerships

The key partnership elements describe the partnership relationship between the company and its suppliers and partners

a. Partnership with Suppliers

Partnerships with suppliers enable the mushroom agroindustry to meet the needs of raw and supporting materials that are not available locally. Raw materials are obtained from cooperation with several mushroom farmers, complementary materials are obtained from suppliers from the market, and packaging materials are obtained from printing company. The selection of suppliers is carried out with

consideration of price, quality, and communication as it can greatly affect business continuity.

b. Partnership with Sales Partners

Sales partners consist of resellers, retailers, and gift shops. Cooperation with retailers and gift shops makes it easier for consumers to reach and buy the products.

9. Cost Structure

The cost structure consists of fixed and variable costs. Fixed costs include building costs, telephone costs, production machinery and equipment costs, and maintenance costs. Most of the variable costs are incurred to carry out production activities such as the cost of purchasing raw materials and complementary materials, ordering costs, labor costs, and all other costs whose large expenditures are influenced by production volume.

SWOT Analysis

The combination of analysis of strengths, weaknesses, opportunities, and threats (SWOT) through BMC is an effective way to identify each component of the business model in more detail. The application of SWOT analysis to BMC provides a good basis for conducting further discussions, making decisions, and innovation around the business model (Osterwalder et al., 2012). The following are the results of the SWOT analysis on the nine elements of BMC mushroom agroindustry.

1. Internal Environment Analysis

Based on the internal factor evaluation (IFE) matrix, the total score for the mushroom agroindustry is 2.700 (which consisting of strengths and weaknesses). According to Zulkarnain et al. (2018), the IFE matrix value of 2.700 indicates that the company's internal position is at average level. Furthermore, the mushroom agroindustry has a high strength value (0.650) for the existence of clear customer segmentation. This means that the company has a well-defined target of consumers, and a better understanding of consumer's needs. Such measures could contribute to increase customer satisfaction, thus allowing the consumers to make repurchasing of the product. However, the mushroom agroindustry also has a high weakness value (0.500), namely anticipation of the lack of enthusiasm of customers for

healthy food products. This should be addressed immediately. Lack of customer enthusiasm may affect the product marketing, thus it is necessary to carry out intensive promotion to attract customer’s buying interest. One of the intensive promotion routes is through direct marketing activities (company direct contact with customers), allowing the companies to determine the marketing mix more precisely (Rawung et al., 2015).

2. External Environment Analysis

The external factor evaluation (EFE) matrix is the result of an analysis of a company's external environment with a total score of 2.575. According to Zulkarnain et al. (2018), the EFE value of 2.575 indicates that the company's external factors are in a medium position. The greatest external opportunity for the development of mushroom agroindustry business is by optimising online marketing (1.200). Online marketing is critical to be optimised as it enables the SMEs to reach a wider marketing area, facilitate the process of product introduction and marketing, as well as reduce the burden of promotional costs for SMEs (Taiminen and Karjaluoto, 2015). However, the threats coming from other food product competitors (0.525) is also .needs to be watched out for is the threat from Other food product competitors are the first threat to mushroom agroindustry since generally competitors have not produced healthy food products considering that many people tend to choose instant, cheap, and delicious food without paying attention to health side effects.

3. Internal-External (IE) Matrix

The internal-external (IE) matrix shows the position of SMEs and the basis for the formation of alternative improvement strategies. The SMEs position was determined using the intersection point between the X-axis (i.e. total score of the IFE matrix 2.700) and the Y-axis (i.e. total score of the EFE matrix 2.575).

Figure 2 shows the IE matrix of the mushroom agroindustry indicating that the mushroom agroindustry position is in a hold and maintain position (cell V) or with the implication of maintaining strategy. The strategy of maintaining can be achieved by implementing intensive strategies, undertaken to improve the

company's competitive position through the intensive application of appropriate actions. The intensive strategy for this position includes market penetration and product development activities.

According to Bigley (2018), market penetration activities are strategies to increase market share through bigger and better marketing activities. Marketing carried out by the mushroom agroindustry includes direct and indirect marketing. Direct marketing is carried out through social media, websites, delivery orders, and direct conversation. While indirect marketing is done through partnerships with resellers, retailers and gift shops.

Product development strategy is an activity to increase sales through improvements or modifications of the current products (Bigley, 2018). Product development carried out by the mushroom agroindustry through modification of fresh oyster mushrooms into various forms of processed mushroom products with added value and higher selling value. The processed mushroom products are shredded mushrooms (healthy food) made without added preservatives. In terms of products related to services, the development of mushroom agroindustry services is carried out by the provision of the cooking class and healthy class services to educate consumers about healthy food processing as well as soft selling activities for processed mushroom products.

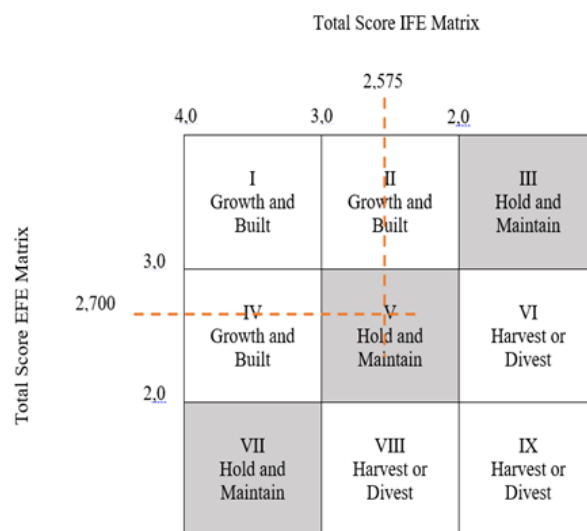


Figure 2. IE Matrix of Mushrooms Agroindustry

Internal Eksternal	Strengths (S)	Weaknesses (W)
	<ol style="list-style-type: none"> 1. Having clear customer segmentations (CS, VP, C, CR, KA, KP, RS) 2. Quality assurance (VP, CR, KR) 3. Marketing channels (CS, VP, CH, CR, RS) 4. Business relationships (VP, KR, KA, KP, RS) 	<ol style="list-style-type: none"> 1. Constraints on indirect marketing activities (VP, CH, KP) 2. Fewer consumers' enthusiasm toward healthy food products (CS, VP, CH)
Opportunities (O)	SO	WO
<ol style="list-style-type: none"> 1. Optimizing the online market (CS, VP, CH, CR, KR, KA, C\$). 2. Fewer competitors of oyster mushrooms byproducts (CS, VP, CH, CR) 3. Optimizing the business relationships (VP, KA, KP) 	Developing and improving product quality to expand the marketing area	Intensively marketing products (food and services) through social media
Threats (T)	ST	WT
<ol style="list-style-type: none"> 1. Sales partner commitment and loyalty (CH, KP) 2. Competitors from other food products (CS, CH, KP) 	Increase promotion and develop services to face competition from other food product	Evaluating and improving the quality of partnership relationships to increase partner loyalty

Figure 3. SWOT Matrix of Mushrooms Agroindustry

Development of Alternative Strategies (SWOT Matrix)

The formulation of strategies based on IE factors aimed to maximising strengths and opportunities, thus minimise weaknesses and threats facing by the company. The SWOT matrix is designed based on the results of IE analysis, intended to combine the four SWOT factors for developing the alternative strategies to expand the mushroom agroindustry business. The SWOT matrix of mushroom agroindustry can be seen in Figure 3.

The alternative strategy is structured into four categories (i.e. Strength-Opportunity/SO, Weakness-Opportunity/WO, Strength-Threat/ST, and Weakness-Threat/WT). The strategy formulation is also based on the position of mushroom agroindustry in IE matrix (i.e. holding and maintaining position with applying an intensive strategy). Intensive strategies can be implemented through market penetration and product development (Bigley, 2018). In the mushroom agroindustry, these strategies consist of:

1. SO Strategy

SO strategy is a combination of company strength factors used to optimise opportunities. The mushroom agroindustry can take

advantage of its strengths to develop and improve product quality for expanding its marketing area. A quality product is relatively easy for the market to accept, including in marketing activities with wider market area coverages. Products with a high quality may increase consumer's purchase interest and encourage regular consumption of products by consumers. Quality improvement is carried out through continuous product innovation on factors affecting food quality such as colour, appearance, portion, texture, aroma, level of maturity and taste (Guine et al., 2016).

2. WO Strategy

The WO strategy is prepared by analysing and minimising the company's weaknesses to take advantage of opportunities. The strategy suggests the company to carry out product marketing intensively through online marketing (i.e. social media). Promotion is an easy way at a relatively low cost can be done using social media. The use of social media for SMEs facilitates business development, increases product sales, eases communication with consumers, and develops and expands market networks (Filipov, 2021).

3. ST Strategy

The ST strategy, formulated based on the strengths and threats of the mushroom agroindustry, is by developing services to face the competition from other food product competitors. Service quality is one of the important factors to create customer satisfaction and attract consumer buying interest (Angelova, 2011). The development of services owned by the mushroom agroindustry is also carried out on the value proposition of providing the cooking and healthy class services. This cooking and healthy class services can also be used as a marketing medium for soft selling of the processed mushroom products. According to Butt et al. (2017), soft-selling emphasizes building trust in the minds of consumers.

4. WT Strategy

The WT strategy for developing the mushroom agroindustry is to evaluate and improve the quality of the partnership relationship to increase partner loyalty. The partnerships between mushroom agroindustry and raw material suppliers affect the sustainability of the production. Besides, the relation with sales partners affects the sales volume, the expansion of the market area, and the ease of the consumers to get products. Partnerships with suppliers can identify optimal practices in facilitating the acquisition of quality raw materials. Sales partnerships are made with resellers, retailers and gift shops. One of the ways to increase sales volume can be done by establishing business cooperation. In achieving competitive advantage, it will be easier for companies to establish business partnerships with various parties such as suppliers, distributors, and consumers (Kaleka and Morgan, 2017).

Conclusion

Based on the SWOT analysis, the strength of mushroom agroindustry is having clear customer segmentation, the weakness is the anticipation of a lack of enthusiasm from customers for healthy food products, the opportunity is by optimization of online marketing, and the threat is other food product competitors. Alternative strategies suitable for mushroom agroindustry consist of (1) developing and improving product quality to

expand the marketing area (SO), (2) increasing promotion and develop services to face competition from other food product (ST) competitors, (3) intensively marketing the products (food and services) through social media (WO), as well as (4) evaluating and improving the quality of partnership relationships to increase partner loyalty (WT).

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