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Advantages of the Location of the Bukit Batu Small and Medium Weaving Industry Center, Bengkalis Regency

Jahrizal[1], M. Hamid[2] and Dahlan Tampubolon[3]

Abstract

The purpose of this study is to analyze the advantages of the location of the Weaving Small and Medium Industry (IKM) Center in Bukit Batu District. To achieve this goal, the research uses the Analytical Hierarchy Process (AHP) method as an analytical tool in decision-making and an alternative model for developing weaving SMIs in the Bukit Batu District—data analysis using quantitative methods. Primary data was collected through interviews with key informants from relevant government agencies. The results showed that Bukit Batu District, Bengkalis Regency, had the advantages of weight at a distance of 0.413, travel time of 0.443, type of transportation of 0.594, wage difference between locations of 0.540, company availability of 0.594, and reasonable shipping costs to consumers of 0.493. Considering these various aspects, this study can provide comprehensive recommendations for local governments and other stakeholders to develop and support the advantages of the Weaving IKM center in Bukit Batu District, Bengkalis Regency, to improve product competitiveness.

Keywords: *AHP, Location Advantage, Product Competitiveness, Weaving SMIs*

INTRODUCTION

The importance of the small and medium industry sector, abbreviated as IKM, has become one of the pillars of the national economy, especially after the crisis hit Indonesia in 1998. SMEs are businesses that have the resilience to deal with economic problems. This was proven during the financial crisis; SMEs could survive the downturn experienced by other large companies. Even the number of SMIs increased after the crisis (Ratnasari, 2013).

The contribution of SMIs is to support improving the economy from regional to national. Yenita in Birny (2022) estimates that SMEs in Indonesia reach around 4.4 million, with this entire sector able to absorb as many as 18.64 million workers. The era of regional autonomy, which has implications for regions planning their development in their areas, makes the position of SMEs very important to realize regional economic development and community empowerment.

Bengkalis Regency is located in a strategic area adjacent to the busiest international shipping lane in the world, namely the Strait of Melaka; this factor can be an advantage in developing SMEs. The number of SMIs in Bengkalis Regency in 2017–2020 has increased over the last four years of industry. The medium sector experienced an increase of 9.88 percent, and the small industry increased by 15.99 percent. The existence of SMEs, small enterprises and households can create jobs, so it is considered a driver of economic improvement. In 2017–2020, the workforce absorbed by medium industries increased by 11.90 percent, small industries experienced an increase in labor absorption by 4.56 percent, and when combined, SMIs experienced a rise in labor absorption of 7.79 percent (BPS, 2020).

IKM Weaving is one of the superior products based on culture. There are 296 weaving SMIs spread across Bengkalis Regency, but they still need an IKM center. This condition impacts the need for coordination and collaboration between the weaving industry artisans in striving for a conducive industrial environment that can encourage the growth of the weaving industry. The Small and Medium Industry Center (Sentra IKM) is the concentration of locations of small and medium industrial activities that produce similar products, use similar

[1] Lecturer in Faculty of Economics and Business, University of Riau E-mail: jahrizal@lecturer.unri.ac.id (Corresponding Author)

[2] Lecturer in Faculty of Economics and Business, University of Riau

[3] Lecturer in Faculty of Economics and Business, University of Riau

raw materials, or work on the same product and are equipped with supporting facilities and infrastructure so that it is expected to increase productivity for each region to develop various types of superior local products.

Weaving SMIs in Bengkalis Regency have considerable potential to be developed by improving product quality, branding, and promotion, increasing human resource capacity, optimizing market access, and increasing production efficiency. Following Michael Porter's theory of competitive advantage from the 1980s, "the success of an industry or firm in competing depends on five main factors: government policy, conditions of production factors, industrial structure, business strategy, and level of competition" (Porter, M ., 1985). Then innovation and creativity are the primary keys to increasing the competitiveness of a country or industry. Innovation and creativity can fuel strong, sustainable economic growth and create new, productive jobs" (Schumpeter, J., 1934). According to Wulandari and Kartika (2021),

Location theory significantly impacts the general location of industrial establishments in large cities, suburbs, and outside cities (Adisasmita, 2008). Location theory is a science that observes the spatial layout of economic activities or investigates the geographical allocation of potential sources and their relationship with or influence on the existence of various other businesses/activities, both financial and social. In general, several factors, such as nearby raw materials, local demand, movable raw materials, and external demand, influence the location of an activity unit. The IKM Center also operates to strengthen the industrial structure itself. Arisandi and Yulianto (2021), Small and medium weaving industry (IKM) centers can act as economic centers in an area. According to research by Susanti and Jati (2019), the Weaving IKM center'

According to Sjafrizal (2018), six determining factors must be considered in carrying out economic activities, both agricultural, industrial and services, including 1) transportation costs; 2). Wage differences between regions; 3) Agglomeration profits; 4) Concentration of demand; 5) Competition between venues; 6) Land rental prices.

RESEARCH METHODS

Location and Object of Research

The location of this study is in Bengkalis Regency, Riau Province, with the object of research on weaving SMIs located in Bengkalis Regency.

Data Types and Sources

This research uses quantitative data, including data on weaving SMIs in Bengkalis Regency in the form of wages, production costs, sales, and demand concentration. Data sources are obtained from interviews with respondents directly.

Data Collection Techniques

The type of primary data needed in this study is interview data of resource persons, function data and details of the construction of the Weaving IKM Center in Bengkalis Regency, field documentation data, and literature data related to the IKM Center in Bengkalis Regency.

Operational Definition of Research Variables

Some operational definitions of variables in this study have the following limitations:

Freight Cost

Costs incurred by manufacturers shipping goods to factories and shipping products to consumers.

Agglomeration

This industrial agglomeration results from interdependence, linkage, and support between upstream industries, downstream industries, and supporting initiatives.

Demand Concentration

The place where the demand for the most manufactured goods is quite large.

Competition between venues.

The price at the buyer's place is added to the freight price so that the consumer chooses the site with the lowest price.

Land Price and Rent

High and low prices or land rents, both offered by land-owners (land-rent) *and a bid-rent that business who intends to use the land owners can pay.*

Data Analysis Techniques

In this study, data processing was carried out using the Analytical Hierarchy Process (AHP) and SWOT analysis.

RESULTS AND DISCUSSION

Analytical Hierarchy Process (AHP)

In this study, the weight of the determining factors for the location of the Weaving Small and Medium Industry (IKM) center in Bengkalis Regency was determined using the AHP (Analytical Hierarchy Process) method. This method will then be used as input in the subsequent analysis stage. A total of 5 respondents were stakeholders involved in this study. Based on the results of the questionnaire, a consistency value of 0.01 was obtained without missing judgment. No questionnaire review is required because the consistency value is lower than 0.1. Next, weighing is carried out between existing factors and variables.

After analyzing the AHP results from the six respondents, the merging of AHP results was carried out using the combined function to obtain a combined priority. The following are the results of the determining factors for each respondent:

Table 1. Weight of Research Variables

Factor	Weight	Ins (%)
Freight Cost	0.365	37
Wage Differences Between Regions	0.230	23
Agglomeration	0.151	15
Demand Concentration	0.128	13
Inter-venue competition	0.066	7
Land Price and Rent	0.060	6
	1,000	100

Source: Processed data using Expert Choice 11

The table shows that freight costs have a variable weight of 37 percent of the total weight of existing indicators. So freight costs become the priority indicator. Coming in second is the irregular wage difference between regions, weighing 23 percent. Meanwhile, agglomeration variables have a significant weight of 15 percent of the variables used. For variables, competition between places weighs 7 percent, and the last is land prices and rents, with 6 percent of the total variable weight.

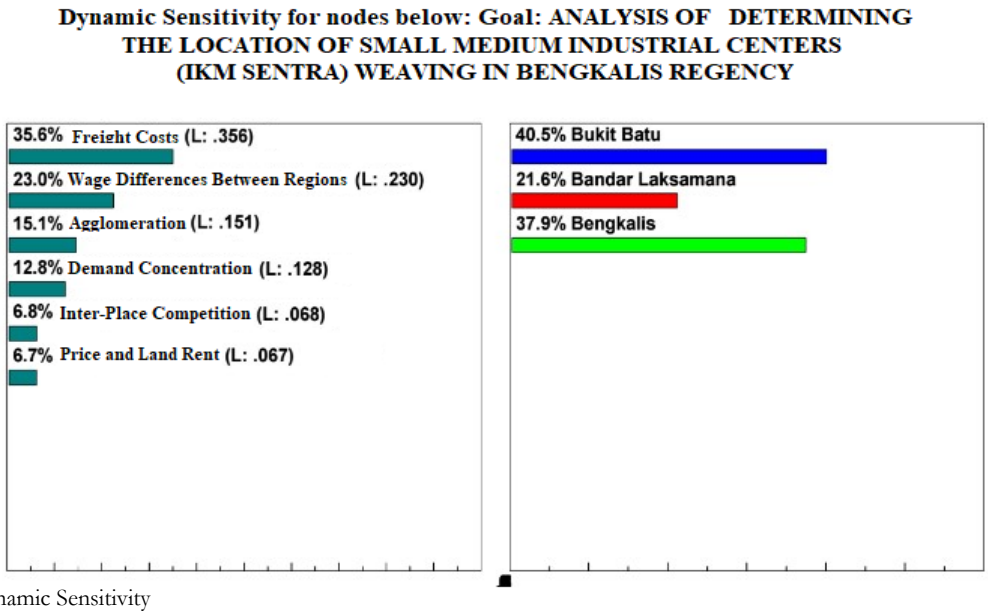

Figure 1. Dynamic Sensitivity

Source: Processed data using Expert Choice 11

Figure 1. Illustrates that Bukit Batu District is the location of the IKM Center with the highest level of weight, with a percentage of 40.5 percent. Then the number two position is in Bengkalis District, with a weighting value of 37.9 percent. Furthermore, the lowest weight was in Bandar Laksamana District, with a value of 21.6 percent. With this result, it can be confirmed that the IKM center will be built in the Bukit Batu District.

Performance sensitivity illustrates that the highest weight transportation costs are in the Bukit Batu District, while the Bandar Laksamana and Bengkalis Districts are in almost the same position. For variable wage differences between regions, the highest performance was in Bengkalis District, and the lowest was in Bandar Laksamana District. In the agglomeration variable, Bukit Batu District and Bengkalis District are almost in the same position, while Bandar Laksamana District is far below. The highest demand concentration is in Bengkalis District, and the lowest is in Bandar Laksamana District. Then, in the competition between places and rental prices, the highest performance is in Bukit Batu District and the weakest in Bandar Laksamana District.

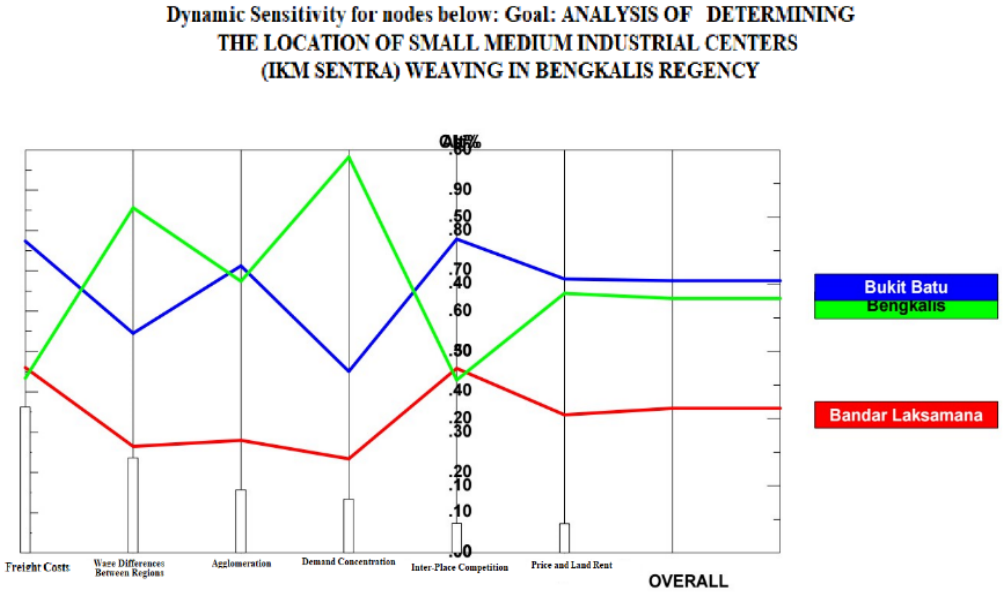

Figure 2. SWOT Analysis

IFAS Matrix Analysis

The IFAS (*Internal Factor Analysis Summary*) matrix is a strategic analysis tool used to evaluate the internal factors that affect its performance. This matrix helps identify its inner strengths and weaknesses and assesses the relative weight of those factors.

Table 2. IFAS Matrix

No	Key Internal Factors	Weight	Ratings	Weighted Score
Strengths				
1	Good product quality in line with consumer expectations	0.14	4	0.50
2	Always innovate products in accordance with the times	0.13	3	0.44
3	It has a high cultural value because it is a local cultural heritage	0.15	4	0.55
4	Wide market segmentation	0.14	3	0.47
5	Strategic location	0.14	3	0.47
Weaknesses				
6	Difficulty in obtaining loans/business capital	0.07	2	0.11
7	There is no institutional organization of weaving craftsmen at the district level	0.06	2	0.09
8	Does not have a strong distribution network	0.05	1	0.07
9	Lack of availability of competent human resources	0.07	2	0.09
10	Traditional business management system	0.05	1	0.07
Total		1.00		2.88

Source: Primary data processing, 2023

The IFAS matrix for the development of the Weaving IKM center has a score of 2.88, meaning that the organization still has weaknesses in its internal factors, but has several strengths that can be further developed. Therefore, it is necessary to evaluate and improve its internal elements to compete with its competitors in the market.

EFAS Matrix Analysis

The EFAS (External Factor Analysis Summary) matrix is a strategic analysis tool for evaluating external factors affecting performance.

Table 3. EFAS Matrix

No	Key External Factors	Weight	Ratings	Weighted Score
Opportunities				
1	Potential to become a regional superior product	0.17	3	0.52
2	Technological advances make it easier for craftsmen to sell out of the area	0.18	3	0.54
3	Changes in consumer lifestyle	0.18	4	0.72
4	Can expand into international markets	0.17	4	0.68
Threats				
5	Owners are still struggling to expand the market	0.08	2	0.12
6	Fluctuating raw material prices	0.07	1	0.11
7	Product competitiveness is still low	0.08	2	0.11
8	High competition of similar products	0.07	1	0.10
Total		1.00		2.90

Source: Primary data processing, 2023

The EFAS matrix for developing Weaving IKM centers in Bengkalis Regency, with a score of 2.9, can be interpreted that the influence of external factors on the development of Weaving IKM centers in the area is a manageable size. Several factors, such as lack of intense competition in weaving production, fixed market demand, and support elements from local governments for the weaving industry, can cause this.

IE Matrix Analysis

IE (Internal-External Matrix) matrix is a strategic analysis tool used to evaluate internal and external factors that affect the performance of an organization. This matrix combines two analysis matrices: IFE (Internal Factor Evaluation) Matrix and EFAS (External Factor Analysis Summary) Matrix.

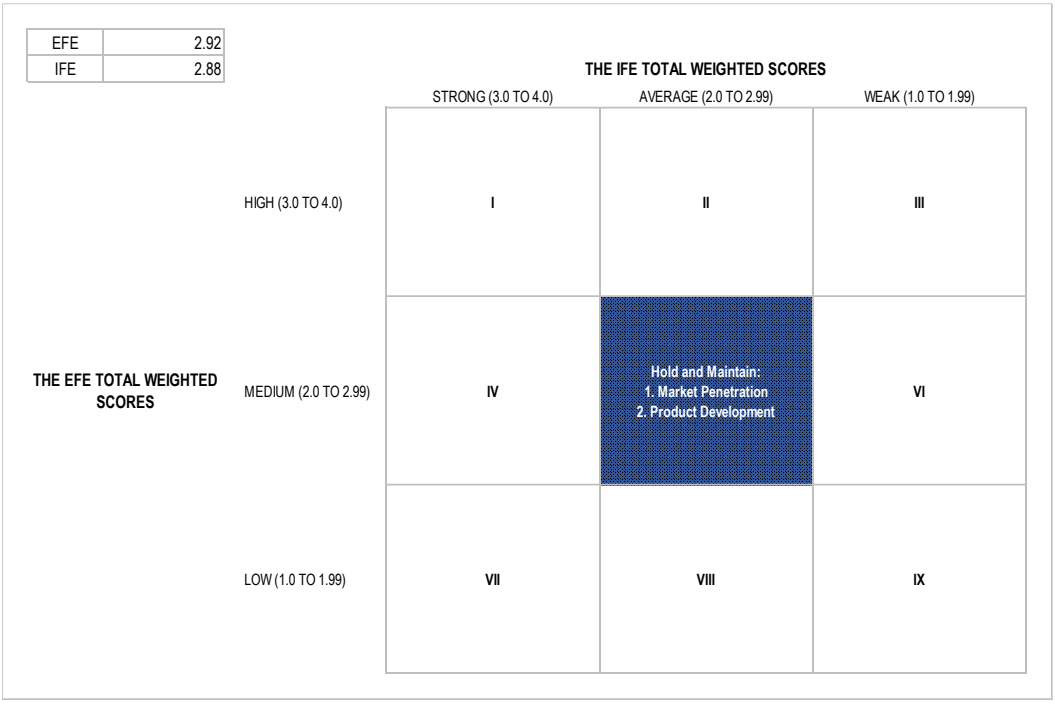

Figure 3. IE Matrix

Source: Processed primary data, 2023

In the IE Matrix (Internal-External Matrix), if the EFE value is 2.9 and the Market Penetration factor has a high relative weight, the organization needs to focus on market development strategies to increase its market share. Therefore, some things that can be done to increase the market share of the Weaving IKM Center in Bengkalis Regency are increased production, product development, Design Innovation, and online marketing.

In addition to external factors, the organization must consider internal factors such as effective management, financial strength, and production efficiency. A market penetration strategy requires hard work and consistency to achieve goals. Therefore, the Weaving IKM center needs to conduct periodic evaluations and adapt to market changes to remain competitive and sustainable in the future. With the construction of the Small and Medium Weaving Industry (IKM) Center, the traditional weaving industry in Bengkalis Regency can grow and become a great economic potential for the area.

IE (Internal-External Matrix) matrix, with an IFE value of 2.88 and a high relative weight, organizations need to focus on developing new products to increase their competitiveness. Therefore, some things that can be done in the context of product development at the Weaving IKM Center in Bengkalis Regency are as follows: Product Research and Development, Design Innovation, Online Marketing, Training, and Human Resources Development By implementing these methods, the Weaving The IKM Center in Bengkalis Regency is expected

to increase its market share through the development of new products that are more attractive and of high quality. However, in addition to internal factors, organizations must consider external factors such as market competition and technological developments.

SWOT Diagrams

In the diagram below, it can be seen that the position of the development of the IKM Weaving Center that will be carried out is in the position of Quadrant 1, namely an aggressive strategy.

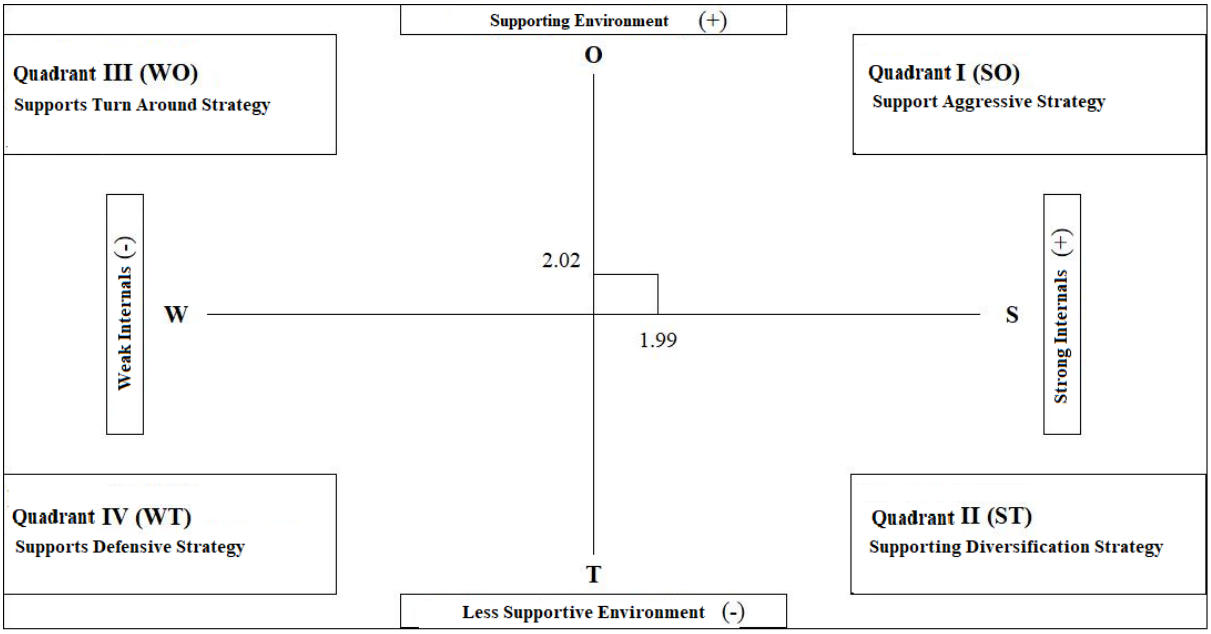

Figure 4. SWOT Diagram

Based on the SWOT analysis that has been carried out, an aggressive strategy is needed in the development of the Weaving Small and Medium Industry (IKM) Center in Bengkalis Regency. Here are some aggressive strategies that can be done:

a) Enhancing Design Innovation

Organizations must continue to innovate designs so that the products produced have high appeal and stay current with the latest market trends. Weaving IKM centers can collaborate with universities or research institutions to get new ideas in product development. Hakim et al. (2018), design innovation is essential in increasing product attractiveness and sales in the creative industry.

b) Improve Product Promotion and Marketing

To increase sales, the Weaving IKM center must increase product promotion and marketing through e-commerce platforms and social media and participate in significant events such as exhibitions and local product bazaars. Regarding product promotion and marketing, according to Wibowo and Sutrisno (2019), promotion through social media and e-commerce is very effective in increasing sales of woven fabric products. Therefore, the Weaving IKM center in Bengkalis Regency must increase product promotion and marketing through e-commerce platforms and social media to reach a broader market.

c) Expanding the Market

The Weaving IKM Center in Bengkalis Regency must expand its target market nationally and internationally. According to Ahmad (2021), one strategy that can be done is cooperating with foreign

parties or participating in international trade events. This can help the Weaving IKM center in Bengkalis Regency expand the market and increase product competitiveness in the global arena.

d) Developing New Products

With excellent market potential, IKM centers must continue developing new products, such as accessories, bags, clothing, and so on. In developing new products, the Weaving IKM Center needs to focus on contemporary aspects and adjust to the needs of today's market. Aulia and Fathurochman (2020) believe that new product development can be an aggressive strategy to increase the competitiveness of weaving products. The Weaving IKM Center in Bengkalis Regency can develop new products, such as accessories, bags, clothing, and so on, with excellent market potential. In developing new products, organizations need to focus on contemporary aspects and adjust to the needs of today's market.

e) HR Training and Development

Training and human resource development are essential factors in improving product quality. The Weaving IKM Center must hold training and workshops for weaving artisans to make high-quality products. The results of Handayani and Prasetyo's (2020) research, training is an essential factor in improving product quality at Weaving Small and Medium Industry (IKM) centers. The study results show that training in modern weaving techniques and selecting suitable materials can improve the ability of artisans to produce high-quality products. In addition, the training also helps artisans understand market tastes and the latest fashion trends to make products that match market demands.

By implementing the above, aggressive strategy, the Weaving IKM Center in Bengkalis Regency can be more competitive and maintain its existing market share. In implementing the plan, the organization needs to adjust to market needs and evaluate periodically to ensure the conformity of the strategy with the intended target.

SWOT matrix is a strategic analysis method used by various organizations and companies widely. This method is designed to identify internal (strengths and weaknesses) and external (opportunities and threats) factors that affect an organization's ability to achieve its goals. The SWOT matrix on the development of the Weaving IKM Center in Bengkalis Regency is based on internal and external factors identified through the evaluation of data and information about the Weaving IKM Center and the results of related research and studies.

Table 4. SWOT Matrix

IFAS / efas	(S1) Good product quality in line with consumer expectations	(W1) Limited working capital
	(S2) Always innovate products according to the times	(W2) There is no institutional organization of weaving craftsmen in Bengkalis
	(S3) It has a high cultural value because it is a local cultural heritage	(W3) Does not have a strong distribution network
	(S4) Wide market segmentation	(W4) Lack of availability of competent human resources
	(S5) The existence of a strategic business location	(W5) Traditional business management system
OPPORTUNITIES (+)	**STRENGTHS (+) / OPPORTUNITIES (+) STRATEGY**	**WEAKNESSES (-) / OPPORTUNITIES (+) STRATEGY**
(O1) Potential to become a regional superior product	Improve production infrastructure, such as modern and efficient weaving machines, and optimize inventory management. (S1, S4, O2, O4)	Establish cooperation with distributors and utilize digital platforms such as Marketplace and e-commerce (W3, O4)
(O2) Received support from the government	Conduct research and development to create new products tailored to the needs and lifestyles of today's consumers (S2, S3, O3, O4)	Establish cooperation with private and government institutions to obtain financing (W1, W3, O1, O2, O4)

(O3) Changes in consumer lifestyle	Make cooperation with importers participation in international trade fairs. (S4, S5, O1, O5)	
(O4) Can expand to international markets	Propose regulations on the use of weaving IKM production in government activities (S3, O1, O2)	
(O5) High availability of labor		
THREATS (–)	**STRENGTHS (+) / OPPORTUNITIES (+) STRATEGY**	**WEAKNESSES (–) / THREATS (–) STRATEGY**
(T1) Owners are still struggling to expand the market	Establish cooperation with suppliers using contracts (S1, S3, T2, T3)	Improve employee training and development (W4, T1, T3
(T2) Fluctuating raw material prices	Adding variations both in terms of motives to product types (S2, T1, T3, T4)	Procurement of competent experts in data science (W4, W5, T1, T3, T4)
(T3) Product competitiveness is still low		
(T4) High price competition for similar products		

Source: Primary data processing, 2023

The SWOT matrix in Table 5.5 produces four alternative strategy cells that can be concluded in the process of developing the IKM Weaving Center that will be carried out including:

1) Strength-Opportunities Strategy

The strengths-opportunities strategy in the SWOT matrix is a strategy that utilizes the strengths of the organization to take advantage of existing market opportunities. In this strategy, the organization seeks to exploit its powers to benefit from the opportunities available in the external environment.

a. Improve production infrastructure, such as modern and efficient weaving machines, and optimize inventory management.

b. Conduct research and development to create new products tailored to the needs and lifestyles of today's consumers.

c. Make cooperation with importers' participation in international trade fairs.

d. Propose regulations on the use of weaving IKM production in government activities.

2) Strategy Weaknesses – Opportunities

This strategy is applied to the utilization of existing opportunities by minimizing the weaknesses possessed:

a. Establish cooperation with distributors and utilize digital platforms such as Marketplace and e-commerce.

b. Establish collaboration with private and government institutions to obtain financing.

3) Strategy Strengths – Threats

a. Establish collaboration with suppliers using contracts.

b. To establish cooperation with suppliers, IKM Tenun needs to strengthen relationships with these suppliers.

c. Adding variations both in terms of motives to product types

4) Strategy Weaknesses-Threats

a. Improve employee training and development.

b. Procurement of competent experts in data science.

CONCLUSION

The results of the study indicate that Bukit Batu District has several advantages for establishing the Weaving IKM Center. The factors considered include distance, travel time, transportation options, wage differences between locations, availability of companies, and reasonable shipping costs to consumers. After analyzing the AHP results from multiple respondents, it was determined that the IKM Center should be built in the Bukit Batu District. The study also employs strategic analysis tools such as the IFAS (Internal Factor Analysis Summary) matrix, EFAS (External Factor Analysis Summary) matrix, IE (Internal-External) matrix, and SWOT analysis. These analyses evaluate the internal and external factors influencing the development of the Weaving IKM Center.

Based on the SWOT analysis, an aggressive strategy is recommended for the development of the IKM Weaving Center. The strategies include enhancing design innovation, improving product promotion and marketing, expanding the market nationally and internationally, and developing new products such as accessories and clothing.

Overall, the study provides comprehensive recommendations for local governments and other stakeholders to support and develop the advantages of the Weaving IKM center in Bukit Batu District, Bengkalis Regency. By implementing these strategies, the weaving industry in the region can enhance its product competitiveness and contribute to regional economic development.

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