

During the pandemic, the Indonesian authorities are committed to limiting the social and economic mobility of the community. One of the activities carried out is online purchases. With changes in people's behavior towards meeting online needs, small and medium-sized enterprises will be able to use information technology in making online marketing of products sold to consumers. The object of this research is batik small and medium-sized enterprises in Indonesia. At this time, many batik small and medium-sized enterprises have used online marketing, but it has not been said to be optimal. It can be shown that there are still many batik small and medium-sized enterprises that have experienced a fifthly percent decline in sales during the pandemic. Therefore, batik small and medium-sized enterprises must be able to increase sales capacity through online marketing to increase profitability. The purpose of the study is to identify both internal and external factors in order to instigate a better strategy to improve the firm's market. This research uses qualitative and quantitative methods. The method used is to integrate the Strength Weakness Opportunities Threats and Analytic Hierarchy Process methods to increase profitability. These results are in the context of the Strengths Opportunity strategy, which includes analyzing the potential of digital marketing and developing innovative business models, that batik small and medium-sized enterprises must expand the market by maximizing online marketing and increasing quality and creativity in creating product content online. This research found that a prominent strategy for developing the batik business is the strength and opportunity strategy that takes advantage of strengths and opportunities in order to increase competitiveness.

**Keywords:** strength weakness opportunities threats, analytic hierarchy process, e-commerce, small and medium-sized enterprises

# MARKETING STRATEGY DESIGN BASED ON INFORMATION TECHNOLOGY IN BATIK SMALL AND MEDIUM-SIZED ENTERPRISES IN INDONESIA

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Received date 12.11.2021

Accepted date 14.12.2021

Published date 28.12.2021

**How to Cite:** Suhartini, S., Mahbubah, N. A., Basjir, M. (2021). Marketing strategy design based on information technology in batik small and medium-sized enterprises in indonesia. *Eastern-European Journal of Enterprise Technologies*, 6 (13 (114)), 39–48. doi: <https://doi.org/10.15587/1729-4061.2021.244137>

## 1. Introduction

Micro, small and medium-sized enterprises (SMEs) are an essential pillar of the economy in Indonesia. At this time, SMEs can contribute annually 61.07 percent or Rp. 8,573.89 trillion to the gross domestic product (GDP). The contribution of SMEs to the Indonesian economy includes the ability to absorb 97 % of the total workforce and increase investment up to 60.4 % of the total investment.

During the pandemic, the government is committed to limiting the social and economic mobility of the community. The government advises carrying out activities or transactions from home to break the chain of spreading the delta type of coronavirus. One of the activities carried out is online purchases. With changes in people's behavior towards meeting online needs, SMEs will be able to use information

technology in making online marketing of products sold to consumers.

In carrying out their activities, SMEs use e-commerce. According to [1], it can increase new market opportunities so that economic growth becomes very rapid [2]. Increasing market opportunities by using e-commerce will affect the use of social media. Companies can measure their performance by involving the role of the internet in carrying out their activities [3]. There are two critical phenomena in the development of the internet, namely social media and online machines. In the business field, social media is a communication tool between companies and customers [4]. Social media is the most effective information [3]. The company can understand customer needs through communication on social media. This information is more effective so that the company responds quickly [5].

In marketing their products online, batik SMEs must have the right strategy to be competitive. At this time, SMEs in marketing their products online do not consider the development of information technology and consumer desires, which are constantly and rapidly changing [6]. The purpose of this study is to identify internal factors and external factors to determine the strategy. Strategy determination can be done by using SWOT analysis. According to [7–9], SWOT analysis has to set goals and make strategic decisions in the industry.

Therefore, research using SWOT and AHP is very relevant, where the results of the two methods provide solutions for batik SMEs in determining strategies. By having the right approach, batik SMEs can increase sales so that batik SMEs can face competition.

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## 2. Literature review and problem statement

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According to [10], the existence of technological developments resulted in the industry using e-commerce. The research was conducted at the e-commerce company Shopee. Service improvement can be done by determining the right strategy so that it can face market competition. In determining the strategy, the SWOT method is used. Using the SWOT and AHP methods, Shopee can make strategic plans to increase the use of e-commerce. Ease of use of e-commerce can increase product sales capacity. The results of the study state that a strategy is needed to innovate technology using e-commerce because the implementation of e-commerce must be accepted and understood by customers who always have changing desires. Limitations in this study do not mention the respondents involved in identifying each external and internal factor in SWOT.

The research [11] states that the development of the fashion industry is very rapid so it must be able to face competition. The Zara company is a fashion company in China, where it experienced a decline in sales so it had to determine a strategy. The strategy used was determined by the SWOT method. The SWOT identification shows that the company has competitive product prices, unique design and efficient production. The results of this study are that companies must use technology to run their business, expand the product marketing area, improve the quality of marketing and promotions on a regular basis. By using the SWOT method, the Zara company can plan strategies to improve product quality. Quality products can increase production capacity to increase productivity. In this study, only one method is used in determining the strategy. The SWOT method can be integrated with the AHP method. The conclusion section shows the results of the external and internal strategy factors without providing a detailed analysis of the steps that must be taken to achieve the strategy.

According to [12], the internet is a technology that is developing very rapidly. Technological developments can increase product marketing through e-commerce. Small and medium-sized enterprises in China are already using e-commerce to market their products. The use of e-commerce is expected to increase the marketing of SME products abroad. E-commerce conducted in SMEs in China has difficulties in payment, product variations and risks in using e-commerce. The existence of risk requires a strategy. SMEs use a SWOT strategy. Strategic planning using the SWOT method can make it easier for SMEs to market their products. Product

marketing is carried out with increased use in e-commerce. This research does not show the results of the matrix of external and internal factors in SWOT, so it isn't easy to know the value of each external and internal strategy factor.

According to [13], the growth and development of e-commerce every year are observed. Companies must have a strategy in dealing with competition. The e-commerce planning strategy used in running the company's business uses the SWOT method and linear regression. The research divides the types of companies, namely companies that have high and low competencies. Competence can be seen from the company's performance. The results of this study indicate that there is a significant influence between e-commerce strategy and company performance. This study integrates two methods, namely SWOT and linear regression, whereby integrating the two methods, the company can make strategies in implementing e-commerce. The right strategy can show that the company has competent performance. The study results showed that the accuracy was 84.69 %, and the precision was 90.74 %. The performance value states that what has been done has been efficient, but the conclusion section does not provide strategic information for e-commerce planning.

The paper [14] stated the development of the multinational telecommunications company Huawei in China. Determination of e-commerce marketing strategy can improve company development. The SWOT method can be used to determine the marketing strategy by analyzing the company's internal and external factors. The result of the research is that the company has a low price strategy so that it can compete in the international market. Telecommunications companies have implemented the SWOT method in running their business. With the SWOT method, companies can create strategies to improve service to customers. This research does not show the results of the matrix of external and internal factors in SWOT, so it isn't easy to know the value of each external and internal strategy factor.

The paper [15] stated the development of online sales using e-commerce. Foodpanda is one of the online food service companies in Malaysia. Companies are already using e-commerce in carrying out product marketing. The company wants to increase sales by determining a strategy. SWOT is a method used by companies in determining the strategy. The results of the study indicate that the strategy used is to improve the quality of services on the e-commerce platform. In determining the company's strategy, Foodpanda has used the SWOT method. It is proven that the SWOT method can be used to create strategies so that Foodpanda has become the largest online food company. In determining the company's strategy, only the SWOT method was used. The forming process will be better if it uses a weighted value in each external and internal strategy factor. Determination of the weight value of each criterion can use the AHP method.

According to [16], developed countries already have research data management, which is different from conditions in developing countries including Indonesia. This study aims to determine the research data management strategy to be carried out in developing countries. By conducting a systematic literature review in developed countries identified with SWOT. The results show that services in research data management, the availability of infrastructure, and increased awareness of researchers in collecting research data are important in developing countries. Several studies have not considered the value based on the comparison between

the criteria of each internal and external factor in SWOT. Indonesia, as a developing country, can determine a strategic plan in developing research data services. The availability of research data services can follow developed countries that have implemented many research data services. The strategy used in this study only uses the SWOT method. Companies will be better at planning strategies by integrating the SWOT method with AHP.

According to [17], strength factors are Unlimited global location, Save time, No time limit, Price/product comparison, Cost-effective, Direct communication with consumers, Customers who better interact, Flexible target market segmentation, Simple and easy exchange of information, this shows that cost and customer factors are factors owned by SMEs. According to [18], strength factors are lower transaction costs, easy product setup, faster purchasing procedure. No physical company established, Easy transactions, Custom products, Low operating costs, Save time, No time limits, Price/product comparison, [19] Global markets, Save time, No time limits, Price/product comparison, Cost-effective, Flexible target market segmentation, Fast information exchange, Faster purchasing. Meanwhile, according to [20], the strategic factors of the strength of SMEs are better relationships with customers, increased sales, reduced marketing costs. According to [21], strength factors are Increased web traffic, Competitive advantage. SMEs can consider the strategic factor of the company's strengths in determining the strategy. In several previous studies, internal strategy factors indicators generally use the hands of cost, time, and customers.

According to [22], opportunity factors are Exposure to new market segments, Cost reduction, more customer feedback, make the global market. [23] High economic value, Greater international demand, Possibility of processing, Better utilization of excess production, Production of better quality products. [24] The ability to communicate interactively at an affordable cost, being able to contact a large number of users simultaneously at an affordable cost, the availability of social media, getting support from a large number of companies specialized in social media. [20] Rapid technological change, New technology, Global expansion, High time availability (24 hours and seven days a week), Extensive business growth, reduced local competition, Advertising. [21] Changing trends, Increasing number of users, Regular global expansion, High availability (24 hours and seven days a week), Extensive business growth, Advertising. In the internal strategic factors of opportunity in SWOT, several previous studies use quality indicators, technology, and social media.

According to [22], weakness factors are Limited SME resources, Lack of experts in the field of Information Technology, Lack of support from top management. [24] business processes in integrated social media cannot be clearly defined, Lack of company staff to support the dynamic nature of social media, Inability to assess social media marketing opportunities, Lack of experience, and Lack of lessons learned [20, 21] Security, Fake website, Fraud, No discounts and bargains, Long delivery time, Not knowing the quality and physical condition of the product, Product limitations, Lack of direct service, More shipping costs, Limited exposure, Limited advertising, Lack of customer satisfaction. In the weakness strategy factor in SWOT, previous research used indicators of limitations in user understanding in implementing social media in marketing activities.

According to [22], threat factors are Can implement a problem, Lack of experts, technology security, [23] With the existence of a website-based competitor, there are no obstacles so that it can give competitors an opportunity, [24, 25] The existence of substitute products, international competition, Lack of marketing agencies, [20] With the existence of a dominant competitor company, the failure of the company's image, the reported data is not being carried out through metrics. The social CRM application cannot be used effectively. In the threat strategy factor in SWOT, previous research used indicators regarding competition in using online marketing.

From the several studies mentioned above, in determining the company's strategy, many use the SWOT method. The research that will be carried out using the SWOT method also uses the AHP method. It aims to create a more optimal strategy because it considers the weight value of each strategic factor in SWOT, namely strengths, opportunities, weaknesses, and threats.

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### 3. The aim and objectives of the study

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The study aims to evaluate internal and external business factors in order to gain a better understanding of managing batik SMEs.

To achieve this aim, the following objectives are accomplished:

- to determine the internal and external strategic factors of batik SMEs in running their business using the SWOT method. The hope in determining the strategic factors is to produce indicators of each strategy factor;
- to determine the relative importance of each internal and external strategy factor using the AHP method. Expectations in determining the weight value can be used to determine the position in the SWOT matrix;
- to analyze the strategy on the SPACE matrix based on SWOT and AHP. The resulting strategy can help batik SMEs increase e-commerce activities so that they can compete.

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### 4. Materials and methods

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This research uses qualitative and quantitative methods. The method used is to integrate the SWOT and AHP methods. This study uses two questionnaires. The first questionnaire is aimed at determining the internal and external factors in SWOT. The second questionnaire is to determine the weight of each factor using the AHP method. The survey was conducted from August 1 to August 20, 2021. This study used 30 respondents, namely from academics, information technology experts, and batik MSME owners. The steps taken in this research are as follows:

#### 1. Preparation of the Questionnaire.

The questionnaire was designed based on internal factors (strengths and weaknesses) and external factors (opportunities and threats). Questionnaires were distributed and filled out by respondents. The AHP survey was addressed to 30 respondents. The results of the AHP questionnaire are the values of weight and rating. The weight and rating values are used to determine the score on the IFE (Internal Factor Evaluation) and EFE (External Factor Evaluation)

matrices [23]. SMEs used the results of the questionnaire to determine marketing strategies [26].

2. SPACE Matrix and Strength Weakness Opportunities Threats Matrix.

The SPACE (Strategic Position and Action Evaluation) matrix is used to map the company's condition [27] with the model presented using a Cartesian diagram, which has four quadrants, namely aggressive, conservative, defensive, and competitive [28]. In the SPACE matrix, vital strategic factors will be assessed based on the existing condition of the company [29], resulting in the company's position in the existing quadrant [30]. SWOT matrix is a matching matrix for the company's internal and external strategic factors [29] so that a strategy is obtained that allows the company to be carried out based on the development of four strategies, namely aggressive, conservative, defensive, and competitive [31]. SWOT consists of Strengths, Weaknesses, Opportunities, and Threats [32, 33]. Strengths and weaknesses are known as internal factors, and opportunities and threats are external factors [34]. In other words, the strength and weakness factors are identified through the assessment of the internal system environment, while the opportunity and threat factors are identified through the evaluation of the external system environment [35].

3. Analytical Hierarchy Process (AHP).

The AHP method is used to prioritize factors included in the hierarchy, distinguished by criteria or attributes [36]. Using pairwise comparisons to rank the importance of choices in a specific order [37] can be applied to various problems, from simple problems to complex decisions [38]. This method is widely used for decision-making because of its simplicity, clarity, ease of use, and general theoretical purpose. In addition, the AHP method has been used in combination with other analytical methods. For example, a study of landslide risk zones with integrated logistic regression and AHP technique [37]. The process criteria are determined using the AHP method as follows [37]:

1. Determination of the selection criteria.
2. Determination of the weight of each criterion through direct interviews with company owners.
3. Calculation of the weight of each criterion by using pairwise comparisons:
  - a) comparison Matrix Creation;
  - b) perform Normalized Matrix test;
  - c) calculating the Multifactor Evaluation Process;
  - d) performing Weight sum vector calculations.
- 4) determine the order of the criteria for calculating the pairwise comparison based on the most significant value. The principles of AHP are as follows [37]:
  - develop a hierarchy. The problem will be solved, broken down into elements, namely criteria and alternatives, then arranged into a hierarchy. All will start from the base then list all alternatives hierarchically. Next, the criteria for con-

sidering these alternatives. Furthermore, the last is to focus on just one element for the whole;

- assessment of criteria and alternatives, which is an assessment with pairwise comparisons. According to [35], a scale of 1–9 is the best scale for applying opinions. The comparison process can be done by compiling variables;
- carry out pairwise comparisons, prioritization of each criterion and alternative. A comparison of values will be processed to determine the ranking of all available alternatives. Whether qualitative or quantitative, it can be compared according to the determined assessment to obtain the value of weights and priorities. The steps in performing the SWOT and AHP methods can be seen in Fig. 1.

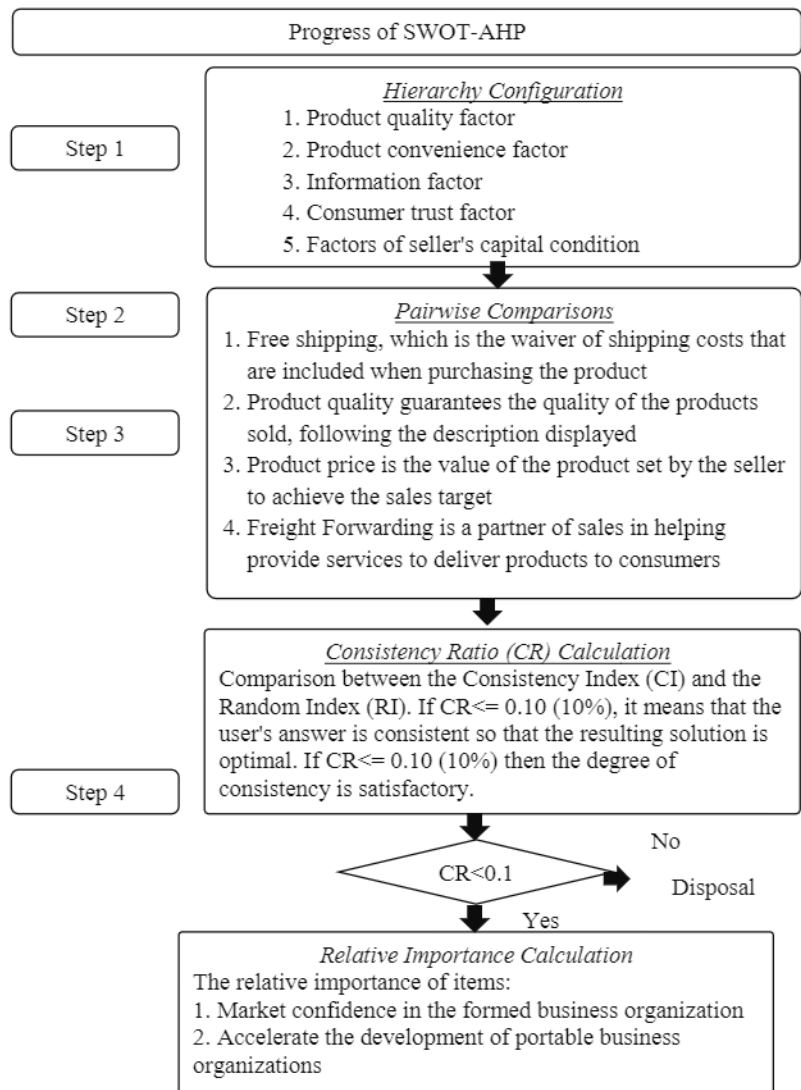


Fig. 1. Steps of the SWOT-AHP method

The method used in this study uses SWOT analysis. SWOT analysis is a type of contextual analysis used to present strategies based on the evaluation of internal capabilities (i. e., strategies, strengths, and weaknesses) with external factors (i. e., opportunities and threats) [8]. SWOT analysis provides information about strengths, weaknesses, opportunities, and threats related to internal and external factors affecting a system. Internal factors are integrated with external factors [9] in a framework

Table 2

named the SWOT matrix to formulate four types of strategies, namely SO, WO, ST, and WT strategies.

In addition, this study combines SWOT analysis with the Analytic Hierarchy Process, hereinafter referred to as AHP, which is a method of decision-making by assessing the most important criteria of a problem so that alternative decisions can be taken from each criterion.

Although the SWOT technique has been implemented in various research objects, there is no clear direction on how to use the SWOT strategy in part of strategic decision-making. Furthermore, SWOT and AHP approach is known as strategic integrations to formulate e-commerce strategies for small to medium-sized firms in developing nations. SMEs in nature have limited resource capabilities that can still implement SWOT and AHP. SMEs generally acknowledge how to identify both internal and external factors. In addition, the result of this study is not only part of the empirical theory of knowledge but is a practical approach. This research is organized as follows. The first stage is the preliminary stage, determining the research objectives. The second is the data collection stage, namely making a questionnaire to identify SWOT factors. The third is the data analysis stage, namely by conducting discussions with experts. The fourth is the conclusion, namely determining the strategy.

The following are the steps of the research conducted based on the SWOT and AHP methods. Table 1 below shows the levels in using AHP.

Table 1

Level of Interest by AHP

Value	Interpretation
1	$O_i$ and $O_j$ are equally important
3	$O_i$ is slightly more important than $O_j$
5	$O_i$ is stronger in importance than $O_j$
7	$O_i$ is much stronger in importance than $O_j$
9	$O_i$ is more important than $O_j$
2,4,6,8	2,4,6,8 Intermediate values

Description:  $O_i$  is the right-hand criterion,  $O_j$  is the left-hand criterion. For logical consistency, all elements are logically collected and ranked consistent with logical criteria.

## 5. Results of implementation of SWOT and AHP methods in batik SMEs

### 5.1. Results of implementation of SWOT external and internal factors based on the questionnaire

According to the respondents, the SWOT analysis results showed that the internal strategy factors amounted to 14 indicators, and the external strategy factor was 12 indicators. Table 2 shows the results of the SWOT analysis factors seen from internal and external strategy factors.

Internal and external factors have been identified, then grouped by experts from industry and academia to assess where factors with relatively low clarity will be eliminated and form priority factors to formulate a SWOT-AHP analysis model.

SWOT Factor Analysis

No.	Internal	No.	External
1	Numerous numbers of online market share	1	Ease of having a website
2	Faster technological changes	2	Search Engine Optimization
3	Online marketing is easy to implement	3	There are online advertisements
4	Can connect with customers	4	The use of online marketing causes a new change in traditional marketing
5	Get instant feedback	5	Have a potential market
6	Online marketing can save time	6	Consumer needs related to online information are getting higher
7	Connected without time limit	7	Consumer behavior patterns and tastes are growing from conventional information to online information
8	The cost of marketing on the internet is relatively very cheap	8	Online technology is constantly evolving
9	Operations carried out require a short time	9	Number of competitors
10	Consumers can immediately find the correct information about SME products	10	Must build reputation
11	Vulnerable to fraudulent activities	11	More and more similar businesses are using online marketing strategies
12	Do not interact directly with customers	12	Marketing strategy must always be up to date in providing information to customers
13	Vulnerable to technical errors		
14	Some customers who do not understand the use of the internet		

### 5.2. Relative importance of internal and external strategic factors based on SWOT

The results of the SWOT analysis factors will determine their relative importance. Experts and academics discuss to determine the relative importance of the SWOT analysis factors. The discussion results show that each of the SWOT analysis factors has five indicators. Strengths have five indicators, opportunities have five indicators, and threats have five indicators. Table 3 shows the results of the SWOT analysis factors.

Based on the survey results, unnecessary items were removed, leaving four items for each SWOT factor. Decisions are made by internal voting of researchers, as shown in Table 3. The questionnaire was created so that the experts removed the unnecessary elements, leaving only the five necessary elements. The questionnaire consists of nine sections, and answering questions is used to identify the required items omitted from the initial questionnaire. Fig. 2 shows that there are three levels in the SWOT and AHP hierarchy.

Based on the items selected in the SWOT factor, a SWOT-AHP hierarchy has been designed. The SWOT-AHP method includes three levels, shown in Fig. 2. The top level involves suggesting strategies for the development of batik SMEs in their marketing. The second level consists of four SWOT factors, and the third level consists of five items for each factor in the second level.

Table 3

Selected SWOT factors

Code	Internal Strategic Factors of batik SMEs
Strength	
S1	The quality of batik that has been recognized by the market so that it requires extensive marketing
S2	Most batik SMEs have branches in their marketing
S3	Get financial support from the Government and facilities for digital marketing
S4	The infrastructure owned is very open in the development of IT implementation
S5	Overall distribution using freight forwarding services
Weaknesses	
W1	Vulnerable to fraudulent activities/fake transactions
W2	The number and competence of batik SMEs human resources towards information technology are low
W3	Does not yet have an official website as a promotional medium that can be accessed widely
W4	High operational costs due to promotional costs using print media
W5	Transaction recap is still manual, allowing errors and data loss to occur
Code	External Strategic Factors of batik SMEs
Opportunities	
O1	Technological developments and ease of having a website as a marketing tool
O2	Get instant feedback
O3	The cost of marketing on the internet is relatively very cheap
O4	Consumer needs related to product information sought quickly and accurately through online media are getting higher
O5	Consumer behavior patterns and tastes that are growing from conventional information to online information
Threats	
T1	The emergence of the latest models/designs in the field of fashion, especially batik
T2	More and more similar businesses are using online marketing strategies
T3	Unstable economic conditions affect people's purchasing power
T4	Consumers are increasingly sensitive to price
T5	The risk of the cybercrime rate is getting higher

5. 3. Level of interest of internal and external strategic factors based on SWOT and AHP

The results of processing using AHP on the SWOT factor show that the factor with the highest relative importance is the opportunity factor (0.408), followed by strength, weakness, and threat, as shown in Fig. 2. Experts prioritize development on marketing through websites that are receiving much attention globally supported by lower operating costs as an opportunity. SMEs also emphasize the importance of developing products and methods to meet the needs of an increasingly rapid variety of batik products. The relative importance of items in the SWOT factor can be seen in Fig. 3.

Based on the items selected in the SWOT factors, a SWOT-AHP hierarchy has been designed. The SWOT-AHP method includes three levels, shown in Fig. 4. The top level involves suggesting strategies for the development of batik SMEs in their marketing.

The second level consists of four SWOT factors, and the third level consists of five items for each factor in the second level. The relative importance of items within the SWOT factors is shown in Table 4.

Table 4

Relative importance of items within the SWOT factors

Item	L-weight	Rank L	G-weight	Rank G
S1	0.247	1	0.070	6
S2	0.206	2	0.058	7
S3	0.186	4	0.053	9
S4	0.199	3	0.056	8
S5	0.163	5	0.046	10
W1	0.197	3	0.030	14
W2	0.229	1	0.035	11
W3	0.178	5	0.027	18
W4	0.211	2	0.032	13
W5	0.185	4	0.028	17
O1	0.182	4	0.077	4
O2	0.214	2	0.090	2
O3	0.224	1	0.095	1
O4	0.182	5	0.077	5
O5	0.198	3	0.084	3
T1	0.205	2	0.029	15
T2	0.202	3	0.029	16
T3	0.232	1	0.033	12
T4	0.192	4	0.027	19
T5	0.170	5	0.024	20

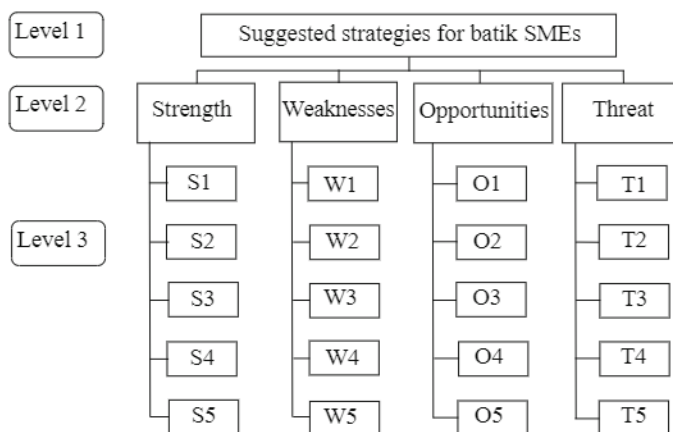


Fig. 2. Hierarchy of SWOT-AHP

In the G-weight analysis, it is known that the item factor O3 occupies the highest value of 0.095, in comparison, the item factor T5 occupies the lowest G-weight value of 0.024. For items on the Strength factor, it ranks G-weight No. 6–10, and for items on the weakness factor, it ranks G-weight No. 11, 13, 14, 17, and 18, For items on the opportunity factor, it ranks G-weight No. 1–5. For items on the threat factor, the G-weight ranking is No. 12, 15, 16, 19, and 20. Table 5 shows a comprehensive SWOT-AHP analysis of each SWOT strategy factor.

The weighted L value (L-weight) results will determine the quadrant of the SWOT-AHP strategic composition. Fig. 6 shows the quadrant of the SWOT-AHP strategic composition that batik SMEs can carry out.

Fig. 6 above shows that batik SMEs must carry out the internal strategic factors and external factors.

Priorities with respect to:  
Goal: SWOT

Combined



Fig. 3. Relative importance of SWOT factors

Synthesis : Summary  
Combined instance – Synthesis with respect to : Goal : SWOT  
Overall Inconsistency = .05

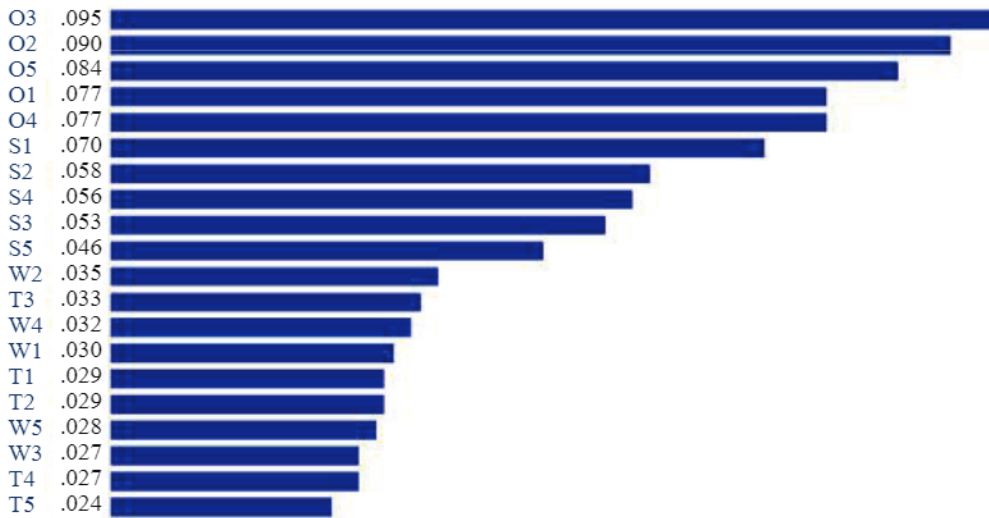


Fig. 4. Relative importance of items within the SWOT factors

Table 5

Results of a comprehensive SWOT-AHP analysis

Factor	CR	Weight	Item	CR	L-Weight	G-Weight
S	0.08	0.302	S1	0.02	0.247	0.070
			S2		0.206	0.058
			S3		0.186	0.053
			S4		0.199	0.056
			S5		0.163	0.046
W	0.08	0.149	W1	0.02	0.197	0.030
			W2		0.229	0.035
			W3		0.178	0.027
			W4		0.211	0.032
			W5		0.185	0.028
O	0.08	0.408	O1	0.03	0.182	0.077
			O2		0.214	0.090
			O3		0.224	0.095
			O4		0.182	0.077
			O5		0.198	0.084
T	0.08	0.142	T1	0.02	0.205	0.029
			T2		0.202	0.029
			T3		0.232	0.033
			T4		0.192	0.027
			T5		0.170	0.024

Table 6

Results of a comprehensive SWOT-AHP analysis (L'-weight)

Item	L'-weight
S1	0.302
S2	0.252
S3	0.227
S4	0.243
S5	0.199
W1	0.128
W2	0.149
W3	0.116
W4	0.137
W5	0.120
O1	0.332
O2	0.390
O3	0.408
O4	0.332
O5	0.361
T1	0.125
T2	0.124
T3	0.142
T4	0.118
T5	0.104

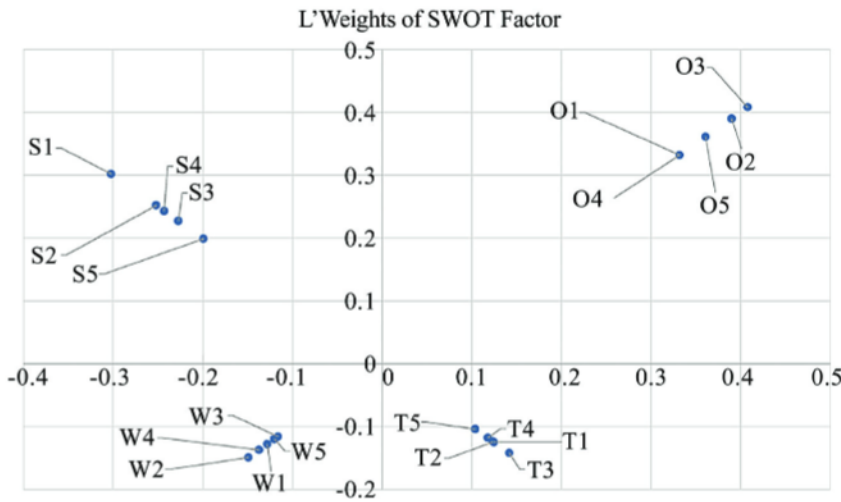


Fig. 5. L'-weight of each SWOT

Internal Factor	S	W
	S1 (0.070), S2 (0.058), S3 (0.053), S4 (0.056), S5 (0.046)	W1 (0.030), W2 (0.035), W3 (0.027), W4 (0.032), W5 (0.028)
External Factor		
O	S (S1,S2,S3,S4) + O (O1,O2,O3,O4,O5)	NA
T	NA	NA
	T1 (0.029), T2 (0.029), T3 (0.033), T4 (0.027), T5(0.024)	

Fig. 6. Strategy composition based on SWOT-AHP

### 6. Discussion of the results of SWOT and AHP importance values

Based on the results of the SWOT-AHP analysis, the relative importance is presented along with the relative importance of the items for each SWOT factor (*L*-weight). We also describe the relative importance of all items in the SWOT factor (*G*-weight), shown in Table 5. A graph can be plotted based on *L*-weights, as shown in Fig. 3, the strengths (*S*) and opportunities (*O*) of the positive factors are plotted in sections 2 and 1, and the weaknesses (*W*) and threats (*T*) of the negative factors are plotted in sections 3 and 4. Table 6 *L*-weights of items in SWOT. The lengths of the straight lines on the graph represent the importance of the SWOT items and their ratio to total importance. The endpoints of the straight line indicate the location of the item with the highest importance for each SWOT factor. The remaining items are plotted on a line according to the *L*-weight value. This comprehensive analysis shows that O3, O2, O5, O4, and O1 opportunities must be utilized. Besides that, it also shows that batik SMEs must use the strengths of S1, S2, S4, and S3 to maintain their existence. Table 5 shows the complete results of the SWOT and AHP analysis.

S1 (quality of batik cloth that has been recognized by the market so that it requires extensive marketing), S2 (most batik SMEs have branches in marketing), S4 (the infrastructure they have is very open in developing IT implementation), and S3 (getting financial support from the government and facilities for digital marketing), O3 (the cost of marketing on the internet is relatively very cheap), O2 (getting feedback/input instantly), O5 (consumer behavior patterns and tastes are growing from conventional information to online infor-

mation), O1 (developments in technology and ease of having a website as a marketing tool) and O4 (consumer needs related to product information that are sought quickly and accurately through online media are increasingly high) are included in the strategic composition.

First, S1, S4, and S3 are the most critical items in one strength factor, indicating that the market share of batik is extensive to be developed abroad, supported by adequate batik SMEs infrastructure, besides that the government must initiate cooperation and support for batik businesses in the capital, as well as opening export marketing channels for batik. Furthermore, an SO strategy that combines S2, S5 with O1, O2, and O3 can be proposed to make marketing and distribution through digital marketing, one of which is through e-commerce and a combination with well-known e-marketplaces to expand, accelerate the distribution of batik and get feedback from customers for transactions. The results of external and internal factors based on the SWOT-AHP can be seen in Fig. 6.

It is also essential for batik SMEs to take advantage of items O4 and O5 that the need for consumer tastes for diverse batik designs and requires speed to receive goods, then batik SMEs can develop their production process from

traditional hand-drawn batik to a more effective and practical stamped batik, efficient process in mapping strategy development, speed and convenience in the analysis process are also needed. The use of electronic-based methods is also a necessity. One method that can be used, namely e-SWOT, is a strategic planning technique that is useful for evaluating strengths and weaknesses, opportunities, and threats, by studying solid strategies to prioritize work that needs to be done to develop the business.

These results are in the same context as SO's strategy, which includes analyzing the potential of digital marketing and developing innovative business models through developing batik production processes from written to stamped batik without losing the element of originality. The SO's a strategy also recommends that the government expand to support their investment in the batik market because it is an authentic culture that needs to be maintained, so batik SMEs also need to periodically map out their strategies with methods that are easy to understand and use.

The SWOT and AHP methods aim to determine the strategy of batik SMEs. In determining the strategy of batik SMEs, the weight value in each factor of the SWOT strategy is considered. Previous studies have carried out the integration of the SWOT and AHP methods. No previous research has discussed the determination of strategy in batik SMEs in determining the value of the relative importance of the SWOT factor indicator by considering batik experts. This study is different from previous research. This study has limitations in determining the relative importance weight based on discussions from experts, academics, and batik SMEs owners. In the selection of experts, very few are



involved, and it is hoped that more experts will be involved so that in determining the weight of relative importance, the results will be optimal. This study has a weakness at the stage of identifying external and internal strategic factors in SWOT. Only a few external and internal factors have been identified. Further research is expected to produce more external and internal factors to provide a better strategy for the data to be processed. This study only discusses strategy determination using the SWOT and AHP methods, and this method has a weakness in determining the weight of the relative value with AHP. The following research can be done by adding the fuzzy method to AHP, so that research in determining strategies can provide maximum results.

This study has limitations, where in determining the internal and external factors, only five indicators are identified for each strategic element. By having five hands, it can be said that the determination of the SWOT strategy is not optimal. It is necessary to add respondents involved in identifying strategic factors for further research. It is hoped that the addition of respondents can provide a more optimal solution in increasing competitiveness for batik SMEs.

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## 7. Conclusions

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1. In this study, the internal strategic factors (strengths and weaknesses) each have five indicators, while external factors (opportunities and threats) also have five indicators each. So, the number of indicators that will be used in SWOT is ten indicators.

2. The results of the relative importance value based on SWOT and AHP include: strengths (*S*) are S1 (0.070), S2 (0.058), S3 (0.053), S4 (0.056), S5 (0.046), weaknesses (*W*) are W1 (0.030), W2(0.035), W3(0.027), W4(0.032), W5 (0.028), opportunities (*O*) are O1 (0.077), O2 (0.090), O3 (0.095), O4 (0.077), O5(0.084), threats (*T*) are T1(0.029), T2(0.029), T3(0.033), T4(0.027), T5(0.024).

3. These results are in the context of the SO strategy, which includes analyzing the potential of digital marketing and developing innovative business models, that batik SMEs must expand the market by maximizing online marketing and increasing quality and creativity in creating product content online. By implementing online marketing on batik SMEs, it will be able to increase competitiveness. Moreover, the development of the batik production process from writing combined with stamped batik does not eliminate the element of originality. The SO strategy also recommends that batik SMEs, in facing widespread and fast competition, need to periodically map their strategies with methods that are easy to understand and use, one of which is e-SWOT analysis.

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## Acknowledgments

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This research is fully funded by the Ministry of Research and Technology/National Research and Innovation Agency (RISTEK BRIN) Indonesia as part of Hibah Penelitian Terapan Unggulan Perguruan Tinggi (PTUPT) with Contract No. 09/KP/MULTI/LPPM-ITATS/2021.

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