A Multi-Criteria Model for Marketing Strategy Selection

for Batik Fashion Creative Industry in Indonesia

Indra Cahyadi[1] and Ika Deefi Anna[2]

Department of Industrial Engineering[1-2]

Faculty of Engineering

University of Trunojoyo Madura

Bangkalan, Jawa Timur

Indonesia

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ABSTRACT

Selecting the best marketing strategy is one of the multiple criteria decision-making problems which involves many criteria or attribute in sequences of the strategy formulation process. The objective of this paper is to develop a marketing strategy selection model for the Batik fashion industry in Indonesia. Recently, Batik entrepreneurs as one of the fashion creative industry players in Indonesia have realized that selecting the right strategy to market their products will assist them to survive in response to fierce business competition. It is expected that the right marketing strategy will improve the profitability, operational efficiency and the existing business process of the parties involved in the fashion creative industry's supply chain management. In this paper, marketing strategy selection is guided by integration and decision effort in connecting a comprehensive set of marketing criteria. A comprehensive model linking customer networking, innovation capabilities, managerial competency, human capital, and company reputation was developed to describe the strategy selection criteria in selecting marketing strategy alternatives. Then, multi-criteria decision-making methods were combined with goal programming equations to rank the priority of marketing strategy based on the Batik industry's resources limitation. The paper employs the multi-criteria decision-making process to match fashion creative products' characteristics with the Batik industry characteristics and to determine the available marketing strategy alternatives. Goal programming method was used to obtain the optimal marketing strategy from the selected Batik industry. Bringing together multi-criteria decision making and goal programming methods under one research, this study shows that Batik entrepreneurs in Indonesia should focus their marketing efforts through segmentation and product innovation in order to gain a competitive advantage over their competitors.

Key Words: Creative industry, Goal programming, Marketing strategy, Multiples criteria decision making, Small enterprises, Medium enterprises.

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1. INTRODUCTION

Economy development in Indonesia depends on small and medium enterprises (SMEs) and fashion creative industries such as Batik industries. Batik is fashion textile products created by drawing decoration pattern or picture using special colored wax on cloth woven [1]. Indonesia's Batik has been very popular and acknowledged as Indonesia cultural heritage and signature fashion. In 2009, UNESCO has inscribed Indonesian Batik on the Representative List of the Intangible Cultural Heritage of Humanity. Since gaining more popularity around the region, Indonesia Batik has emerged as fashion creative industries with massive potential for job creation and wealth through the exploration and generation of creativity [2].

In particular, Batik SMEs as fashion creative industries have high potential to boost employment rate and income in Indonesia. Fashion products made from Batik fabrics are famous for their unique colorful pattern and already marketed through expansive international and domestic trade exhibitions. As consequences, many Batik SMEs have transformed from family-owned outlets into a more structured business entities.

As an anticipation of the ASEAN Economic Community (AEC) implementation in 2020 and the international free trade area regulation, Indonesia Batik SMEs should improve their competitiveness and optimize their marketing process. This international breakthrough actually push fashion creative industry players and Batik SMEs to think harder in order to meet regional and international customers' trend and demand. Demand uncertainty and ever-changing fashion trends characterize the difficulties of market prediction in fashion creative industry [3]. Batik SMEs and their products are depending on their customers while must

maintain their product price to endure high level of competition in the fashion market [4]. From one place to another, fashion market vary widely because of the short life cycle of fashion products. Therefore, Batik SMEs as fashion creative industry must carefully choose their marketing strategy to have better chances to compete and quickly fulfill their consumer demand [5]. Based on the above description, Batik SMEs require an effective, accurate and innovative marketing strategy that capable of supplying the fashion market's trend.

Batik SMEs' business performance is hindered by various challenges, such as fierce business environment and fluctuating market that could significantly influence their cash flow. Batik SMEs would have switched to other types of businesses or gone out of business if they cannot maintain their customers and product's marketability. Selecting the right marketing strategy will help Batik SMEs to sustain their profitability and survival in an increasingly competitive business environment. The right marketing strategy will improve the operational efficiency and the existing business process of the parties involved in the fashion creative industry's supply chain. By doing this, Batik SMEs will be able to survive in regional free trade and maintain their profitability. If not, the Batik industries' business sustainability in Indonesia is threatened.

2. LITERATURE REVIEW

2.1 Marketing Strategies for Batik SMEs

Marketing is considered as an investment that can make a simultenous improvement in pursuit of improved business sustainability and customer perceptions. There are three marketing strategies-including differentiation, overall cost leadership and focus for outperforming competitors and creating a sustainable position- that must be acquired and implemented as SMEs managers basic marketing knowledge [6]. Currently, rapid development of social media has initiated a new kind of marketing strategy that penetrate through people-based network marketing and customer-focused marketing actions (Van de Bulte, 2010). However, marketing is often view as a critical factor in small business situations, when there is often limited money, time, and human resources talent to establish a presence in an overcrowded global market place.

Therefore, selecting the optimum marketing strategy will assist Batik SMEs to survive in response to increasingly fierce business competition. Previous research pinpointed the problems and formulated the competitive strategy for fashion creative industry in Purbalingga region in Indonesia, using an Analytical Hierarchy Process (AHP) [7]. There are five business constraint factors in Purbalingga Batik. They are marketing, human resources, financial, operational, business environment. The article identified that human resources development in Purbalingga Batik was affected by lack of proper management, lack of regeneration, lack of manpower, low productivity, and the emergence of machine-intensive industries. Reference [8] investigated how the SMEs managerial capabilities determine the organization's human resource assets management and market innovation capabilities. Furthermore, SMEs management should equip themselves with specific capabilities for product/market innovation to pursue customers' satisfaction. Therefore, Batik SMEs management should promote and support their employees' creative abilities.

Indeed, SMEs entrepreneurs' vision and proactive attitude to maintain their business sustainability is very important. SMEs owners who have vision, experience and knowledge in managing new business opportunities will be able to take advantage of new market niches through innovative products tailor made to meet the market needs [9]. Proactive attitude to an increasingly uncertain business environment will keep a SME to remain competitive in the market.

2.2 The Influence between Criteria and Marketing Strategy of Batik SMEs

Reference [10] and [11] focused on the marketing resources required to determine the optimal marketing strategy for small businesses. There are five dimensions of marketing that affect small business marketing performance, including: customer networking, innovation capabilities, managerial competency, human capital, and company reputation. These criteria of marketing strategy can be utilized to calculate and assert various weights of criteria and sub-criteria in a hierarchical marketing strategy structure. In this study, the relationship between criteria and marketing strategies has been mapped based on results of previous studies and expert group discussion. Five main criteria relating to marketing strategy were included: customer networking (SCN), innovation capabilities (SIC), managerial competency (MAC), human capital (HRA), and company reputation (SCR).

Customer networking in SMEs refers to the process of network building developed by SME owners-managers with their customers to manage various business activities [12]. In fact, networking involvement brings benefits of enabling trusting relationships among business partners, including customers, suppliers and relatives, for various purposes [13] [14]. Therefore, customer networking relates to customer service level (SCN1), key target customers relationship (SCN2), understanding customer's need (SCN3), creating relationship with new customers (SCN4), maintaining relationship with returning customers (SCN5).

SMEs' innovation capability (SIC) can be defined as the collection of interrelated process and routines SMEs have in place for carrying out innovation related activities such as improving production longevity, improving product quality, developing new products, expanding product ranges and implementing the current technologies in their daily business activities [15]. In this study, SMEs' innovation capabilities are measured through employees creative abilities (SIC1), novel managerial process (SIC2), promotion and implementation of product innovation (SIC3).

This study considers managerial competency as a set of measurable attributes of an employee that is critical for exhibiting effective performance in a specific job in organization or company [16]. These attributes are defined in terms of ability in managing finance (MAC1), ability to handle daily business activities (MAC2), and ability to deal with human resources capital (MAC3). These competencies are behavioral, and can be developed through time [17].

Human capital management relates to the personal responsibility and actions taken by the SMEs owner managers in managing their employee to foster the culture of innovation and sustainability in their firm [18]. This study includes sub-criteria of proper craftsmen regeneration (HRA1) and availability of craftsmanship (HRA2) to examine human capital criteria in the proposed model.

SMEs reputation has been identified as a criteria that relates to all those objects that could influence the representation of a SMEs in the past and future and relevant in particular to SMEs brand equity [19] [20]. Company reputation has commonly measured by examining brand name/reputation (SCR1) and credibility with customers (SCR2). In summary, this study needs to consider the best marketing strategy among four alternatives and related selection criteria that include five dimensions and fourteen criteria.

3. METHODOLOGY

Underpinned by a pragmatic theoretical approach and the literature, this study adopted a quantitative methodology which involved gathering survey data via an online questionnaire from senior managers across different SMEs operating within fashion creative sectors. The survey sample was drawn from State Ministry of Cooperative and SMEs database and local government Agency of Industry and Trade's list of Batik SMEs. The invitations to participate in survey questionnaires were sent by e-mail and the survey link was posted online. There were 56 responses received, producing more than the minimum threshold of 50. The criteria assessment and various alternatives of marketing strategy were determined to identify the SMEs' owners managers criteria in selecting their marketing strategy. A focus group discussion involving the Batik trade practitioners and relevant stakeholders of creative industry development in Indonesia was established to find out the marketing strategy and the marketing selection criteria. The discussion and survey results were used to draw the marketing selection criteria and strategy alternatives relationship. The model then was developed using Analytical Network Process (ANP) methodology to reflect the interconnectivity in selecting the optimum marketing strategy for Batik SMEs in Indonesia.

ANP uses a network map to describe the priorities in a system based on interdependency and feedback [21]. The ANP network map also produces a structured influence network of criteria among nodes and clusters. Clusters are groups of indicators for criteria classification while nodes are criteria or indicators for the model construction. Pair-wise comparisons matrix would be constructed to evaluate all the interactions among the elements and to develop the framework of the problem. Moreover, priority vectors would be calculated to obtain a supermatrix of the influences among the elements. This supermatrix is derived from the inclusion of priority vectors to determine overall priorities in a model involving interrelationship influences of elements on each other. When the criteria are interrelated, the entry of supermatrix of a hierarchy of n given would indicate the interdependency, and the supermatrix is as follows

$$
W = \begin{array}{c} \\ C_1 \\ \\ \\ C_2 \\ \\ C_m \end{array}
\begin{array}{c}
e_{11} \\ e_{12} \\ . \\ e_{1n1} \\ e_{21} \\ e_{22} \\ . \\ e_{2n2} \\ e_{m1} \\ e_{m2} \\ . \\ e_{mnm}
\end{array}
\begin{bmatrix}
W_{11} & W_{12} & W_{1m} \\
W_{21} & W_{22} & W_{2m} \\
\vdots & \vdots & \vdots \\
W_{m1} & W_{m2} & W_{mm}
\end{bmatrix}
\qquad -------------- \ (1)
$$

Since W entries are composed of the vectors entered from the pair-wise comparisons, W is a partitioned matrix with total columns of more than one. Each column of the matrix is summarized to unity and the supermatrix must be transformed to a column stochastic matrix. Then, the limiting value is calculated by raising W to powers to obtain the global priority vectors [22].

$$
\lim_{k \to \infty} W^k \qquad ----- \ (2)
$$

Once, the supermatrix is transformed into a column stochastic matrix, it is raised to a achieve the importance weights convergence. The supermatrix is raised to the power of $2k+1$, where k is an arbitrarily large number. In other words, the supermatrix limiting powers now becomes W^{2k+1}. Then, all the interactions and the final priorities of all elements in the matrix can be obtained by normalizing each block of this supermatrix [21].

One of the ANP method, decision-making trial and evaluation laboratory (DEMATEL) model was developed to each clusters, the elements and their assignment to relationships [23]. The formation of supermatrix, as the interdependence matrix of influences

among the selection criteria, was performed to make a list of Batik SMEs priority over certain marketing strategy. The DEMATEL process is explained as follows:

Step 1: Determine the direct-relation, average matrix. The experts' opinion in focus group discussion and survey results determine the values of relationships between different criteria. Thenm the $n \ x \ n$ average matrix A, or the initial direct-relation matrix, is calculated based on all those results by averaging the H of their scores as follows:

$$[a_{ij}]_{nxn} = \frac{1}{h}\sum_{k=1}^{H}[x_{ij}^k]_{nxn} \qquad (3)$$

Step 2: Calculate a normalized matrix from the initial direct-relation matrix. The normalized initial direct-relation matrix $D = [d_{ij}]$, where each element dij of matrix D is between zero and less than 1: $0 \ < \ d \ ij \ < \ 1$. Normalized matrix D is obtained by normalizing the average matrix A. The calculation is shown below:

$$S = max\left\{max\sum_{j=1}^{n}a_{ij}, max\sum_{i=1}^{n}a_{ij}\right\} \qquad (4)$$

$$D = \frac{A}{S} \qquad (5)$$

Step 3: Derive the total-relation matrix. The total-relation matrix T where each element of t_{ij} reflects the indirect effects that criterion i had on criterion j and represents the relationship between each pair of criteria. The total relation matrix T_{nxm} is obtained by utilizing:

$$\sum_{m=1}^{\infty}D_i = D + D^2 + D^3 + \cdots + D^m \qquad (6)$$

$$= D(I-D)^{-1}(I-D^m) = D(I-D)^{-1}$$

Step 4: Compute the sums of rows and columns of the total-relation matrix T. In the total-relation matrix T, vectors r and c represent the sum of rows and the sum of columns, respectively.

$$r = [r_i]_{nx1} = \left(\sum_{j=1}^{n}t_{ij}\right)_{nx1} \qquad (7)$$

$$= [c_j]_{1xn}' = \left[\sum_{j=1}^{n}t_{ij}\right]_{1xn}' \qquad (8)$$

Where $r = [r_i]$ represents the direct and indirect effects given by criterion i to the other criteria $j= 1,2...,n$ and $c=[c_j]'$ is denoted as transposition matrix that demonstrates direct and indirect effects received by criterion j from the other criteria $i= 1,2...,n$

Step 5: Draw an Impact - Relationship Map. The Impact-Relationship Map is drawn by mapping sets of coordinate (r_i+c_i, r_i-c_i) to form the interrelationship between criteria and provide information to determine which are the most prominent criteria and what are their influences among criteria.

The results from DEMATEL model were carried upon TOPSIS methodology to find closest to the ideal solution and farthest the negative-ideal solution in a multidimensional computing space. TOPSIS method picks the preferred alternative which have the farthest distance from the negative-ideal solution and the shortest distance from the positive-ideal solution [24]. The process TOPSIS method comprises of these following steps:

Step 1: Calculate the normalized decision matrix. The transformation of attribute dimensions into non-dimensional attributes allows comparisons across criteria. The calculation of normalized value r_{ij} is as follows:

$$r_{ij} = x_{ij}\sqrt{\sum_{i=1}^{m}x_{ij}^2} \qquad (9)$$

$$i = 1,2,\ldots,m \ and \ j = 1,2,\ldots,3$$

Step 2: Calculate the weighted normalized decision matrix. Each column of the normalized decision matrix is multiplied by its associated weight. The calculation of weighted normalized value v_{ij} is as follows:

$$v_{ij} = r_{ij} \ x \ w_{ij} \qquad (10)$$

$$i = 1,2,\ldots,m \ and \ j = 1,2,\ldots n$$

Where w^j is the weight of the jth criterion or attribute and $\sum_{j=1}^{n} w_j = 1$.

Step 3: Determine the positive-ideal (A^*) and negative-ideal (A^-) solutions.

$$A^* = \left\{ (\max_i v_{ij} | j \epsilon C_b), (\min_i v_{ij} | j \epsilon C_c) \right\} = \{ v_j^* | j = 1,2,\dots,m \} \qquad (11)$$

$$A^- = \left\{ (\min_i v_{ij} | j \epsilon C_b), (\max_i v_{ij} | j \epsilon C_c) \right\} = \{ v_j^- | j = 1,2,\dots,m \} \qquad (12)$$

where C_b is related with benefit criteria and C_c is related with cost criteria

Step 4: The separation measures is calculated by using the m-dimensional Euclidean distance. The separation measures of each alternative from the negative ideal solution and the positive ideal solution are given as:

$$S_i^* = \sqrt{\sum_{j=1}^{m} (v_{ij} - v_j^*)^2}, j = 1,2,\dots,m \qquad (13)$$

$$S_i^- = \sqrt{\sum_{j=1}^{m} (v_{ij} - v_j^-)^2}, j = 1,2,\dots,m \qquad (14)$$

Step 5: Calculate the relative closeness to the ideal solution by picking the option with value of RC_i^* that is closest to 1. The relative closeness of the alternative A_i with respect to A^* is calculated as follows:

$$RC_i^* = \frac{S_i^-}{S_i^* + S_i^-}, i = 1,2,\dots,m \qquad (15)$$

Step 6: Rank the preference order.

The index values of RC_i lie between 0 and 1. the closest solution to ideal for alternatives is the one with the largest index value.

In the last phase, goal programming technique was implemented identify a set of optimal solutions to MCDM problems. By using multi criteria goal programming (MCGP), the decision-maker will be able to set weights for each alternatives to obtain the right decision under a feasible set of resources and priorities of the goals. There are various MCDM models and methods. This study uses MCGP one zero model to address the marketing strategy selection problems [25]. The MCGP can be formulated as follows:

$$\text{Min Z} = (s_i^+) + P_k (RC_j s_i^-, RC_j s_i^-) \qquad (16)$$
$$\text{Subject to :}$$
$$A_{ij} X_j + s_i^- - s_i^+ = b_i \qquad (17)$$
$$X_j + S_i^- = 1 \qquad (18)$$
$$X_i + X_j = 1 \qquad (19)$$
$$X_i, X_j = 0 \text{ or } 1; s_i^+ s_i^- b_i \geq 1; i = 1, 2, \dots, n, j = 1, 2, \dots, m$$

4. RESULTS AND DISCUSSION

4.1 Multi-criteria Decision Making Methods

The interrelationship map between the evaluation criteria was developed from the questionnaire results and focus group discussion with the experts of Batik trade in Indonesia. The decision-making group was formed from experts who have rich experience in marketing Batik and other fashion products. There appeared to be a common of understanding and agreement with common marketing principles across each of the decision makers. Overall, the responses of SMEs owners and experts from a government agency were obtained and all stakeholders were represented in the results. The resulting map given in Figure 1 from which the interrelationship among the fourteen criteria can be determined
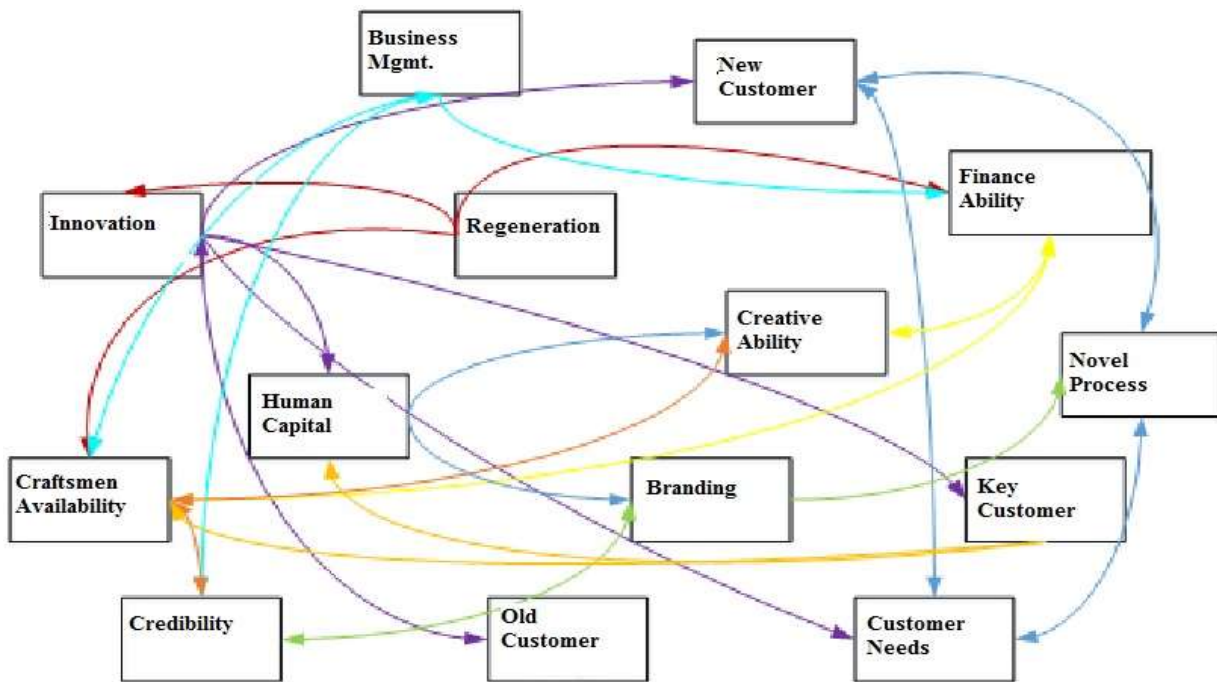
Figure 1. Impact Relation Map of Marketing Criteria for Batik SMEs

According to experts opinions through DEMATEL analysis, almost all criteria are mutually interrelated. Figure 1 is a network of relationships between criteria that influence each other. The relationship can be seen based on the direction of each arrow. For example, cost criteria influences SMEs' effort to follow trend, outlet location, innovation, promotion and employee number. Customer loyalty has impact on customer number, SMEs' credibility and business volume. SMEs' credibility influences branding, customer number and customer loyalty. Every other arrows indicates the criteria that affects another criteria and so on.

The foundation for ANP model development is developed from the network model along with the marketing strategy alternatives and their selection criteria. Figure 2 shows the ANP model for marketing strategy alternatives and related criteria preferred by Batik SMEs in Indonesia.
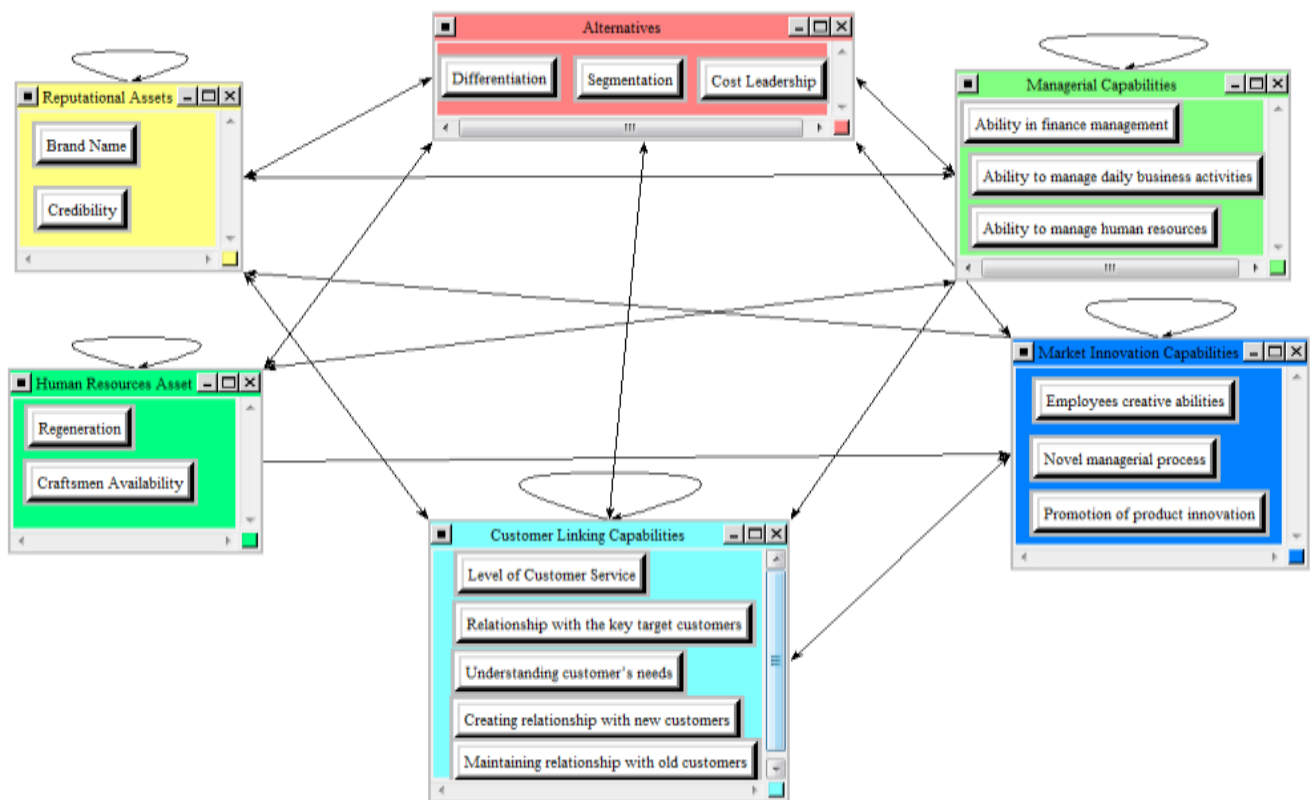

Figure 2. The ANP model for marketing strategy alternatives and their related criteria

The geometric means value of the alternatives was calculated to construct the ANP supermatrix under each of the individual criteria. After performing the first step of ANP which is the network structure formation, the second step of this were performed using the available features included in Super Decision Software package [26].

DEMATEL based ANP were used to determine the values of the factor priority right after the consistency of comparison matrices and the limit super matrix, un-weighted super matrix and the weighted super matrix are assured. Figure 3 and figure 4 show examples of consistency examination using this specialized software.
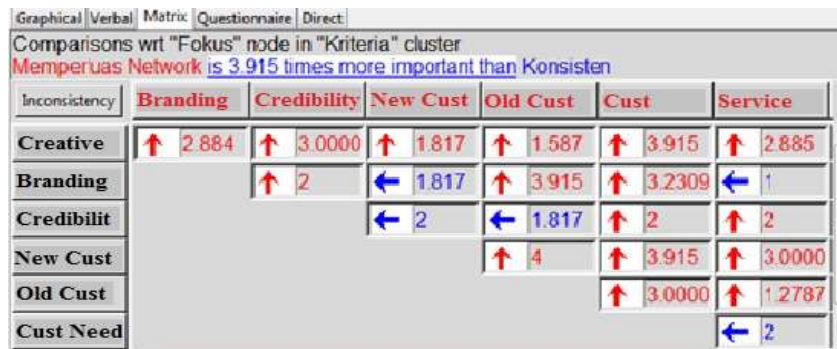

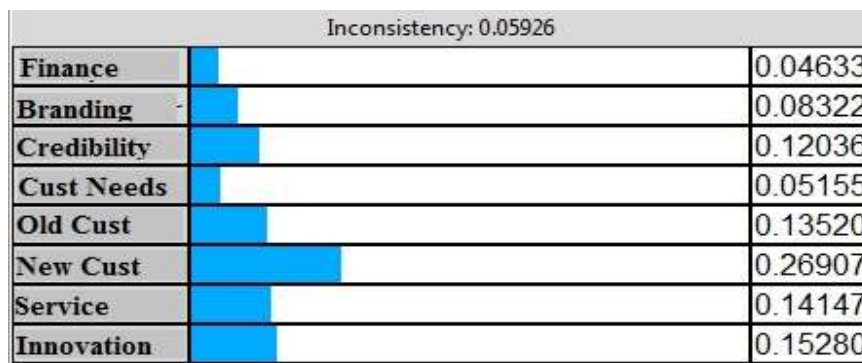**Figure 3. Example of The DEMATEL-ANP consistency pairwise matrix comparisons results**

Figure 4. Example of The DEMATEL-ANP consistency calculation results

Next step is determining the relationship rate between criteria with the DEMATEL method. The following is a table of total influences given and received by each criteria.

Table 1. Influence on each criteria preferred by Batik SMEs in Indonesia

Criteria	r	c	(r+c)	(r-c)
Regeneration	4,100	3,902	8,002	0,198
Craftsmen avail	4,754	4,517	9,271	0,237
Innovation	4,855	4,284	9,139	0,571
Creative ability	5,058	4,744	9,802	0,314
Novel process	4,929	5,126	10,055	-0,197
Finance ability	4,317	4,146	8,463	0,171
Business Mgmt.	4,442	4,397	8,839	0,045
Human capital	4,212	3,953	8,165	0,259
Customer service	4,601	5,218	9,819	-0,617
New customer	4,515	5,596	10,111	-1,081
Key Customer	5,226	5,125	10,351	0,101
Old Customer	4,929	5,125	10,054	-0,916
Customer needs	4,442	5,126	9,568	-0,684
Brand	4,146	4,317	8,463	0,169
Credibility	4,744	5,058	9,802	0,313

Based on table 1 above, it can be seen that the effort to innovate has the highest (r-c) value of 0.571. This means that this criteria is a criteria that has most influence than any other criteria. Conversely the most negative (r-c) value is - 1.081 on the criteria for expanding to new customer. This means that this criteria more likely to be affected than any other influences. The weights of each column in the degree of relative impact for evaluation criteria were normalized to get relative importance weights. Then, every element in a column was divided by the sum of that column. In the last DEMATEL step, the results from the previous step were synthesized to give the interdependence priorities of the criteria. Thus, the weights of the evaluation criteria can be determined as shown in table 2.

In order to determine rank of each criteria from the marketing strategy alternatives, TOPSIS methodology was performed by using DEMATEL based ANP methodology results as the input. There are four marketing strategy alternatives for Indonesia Batik SMEs to choose from, including a more focused marketing (FS), cost-conscious marketing (CC), differentiation marketing (DS) or customer-networked marketing strategies (CS). Based on the weight of each criteria, priority can be given to the marketing strategy. This means that the greater the weight the greater the priority of the related marketing strategy.

Table 2. The criteria weight preferred by Batik SMEs in Indonesia

Criteria	Weight
Regeneration	0.090078
Craftsmen avail	0.091677
Innovation	0.105365
Creative ability	0.094832
Novel process	0.073890
Finance ability	0.088972
Business Mgmt.	0.083808
Human capital	0.092578
Customer service	0.056678
New customer	0.037662
Key Customer	0.086103
Old Customer	0.044424
Customer needs	0.053932
Brand	0.088969
Credibility	0.094825

All cases have been calculated except weight of interrelations between indexes. Weights of interrelations between indexes of the five main criteria, customer networking (SCN), innovation capabilities (SIC), managerial competency (MAC), human capital (HRA), and company reputation (SCR) are estimated from calculation results of weight blocks. The weights of the criterion are obtained by applying equations (3) to (8) to calculate the limiting power of the weighted supermatrix until a steady-state condition is achieved. Table 3 is a section of the limited supermatrix that shows the main criteria.

Table 3. Example of the Limited Supermatrix

	MAC	SIC	SCN	HRA	SCR
MAC	0,0403	0,0403	0,0403	0,0403	0,0403
SIC	0,2008	0,2008	0,2008	0,2008	0,2008
SCN	0,0584	0,0584	0,0584	0,0584	0,0584
HRA	0,1256	0,1256	0,1256	0,1256	0,1256
SCR	0,0747	0,0747	0,0747	0,0747	0,0747

The results of the Table 3 show that innovation (0.2008) and human resources assets (0.1265) are the most concern of the decision makers. On the other hand, they expressed less concern about customer service and expanding to new customer. From the criteria standpoint, the rank order among the five criteria is SMEs innovation capability and the promotion of innovation as important criteria, followed by human resources asset, company reputation and customer networking. This finding revealed that SMEs innovation capability should be mostly taken into account by decision maker in Batik SMEs when selecting their marketing strategy.

The TOPSIS method is calculated by using equation (9) until (12), in which the weights of the criteria are derived from the DEMATEL calculation. Using (11) and (12), the ideal solution (A*) as well as the nadir solution (A–) can be determined. The value of the negative ideal solution is the lowest value of each criteria in the marketing strategy alternative, whereas the best value of each criteria show the positive ideal solution.

By using (13), (14) and (15), each alternative from the ideal and nadir solutions are separated, and the relative closeness to the ideal solution are calculated. The computed distance of each marketing strategy from ideal solution (S_i^+), negative solution (S_i^-) and its relative closeness (*RC*) is shown in table 4 below.

Table 4. The Final Ranking of Marketing Strategy for Batik SMEs in Indonesia

Strategy	S_i^+	S_i^-	RC	Rank
CC	0,138	0,179	0,563	2
FS	0,132	0,187	0,586	1
DS	0,246	0,024	0,089	3
CS	0,281	0,027	0,087	4

Based on the Relative Closeness value, it was perceived that the a more focused marketing strategy has the highest rank of the Batik SMEs marketing strategy, followed by cost-conscious marketing, differentiation marketing then lastly the customer-networked people-based marketing strategy.

4.2 Multi-criteria Goal Programming Method

The relative closeness coefficients (RC_i^*, i = 1, 2, 3) are calculated from previous steps for each marketing strategy. To formulate the MCGP model, the specific criteria constraints and range of the strategy was taken from one of medium-sized Batik producer in Indonesia, as shown in Table 5. Marketing strategy weights are used as RC_i^* (e.g., CC = 0.563, FS = 0.586, DS = 0.089 and CS = 0.087) in an objective function (e.g., equation (1) ($0.563S_5^- + 0.586 S_6^- + 0.089S_7^- + 0.087S_8^-$)) to describe resources allocation for each marketing strategy.

Table 5. Specific criteria of new launch strategies and value ranges

Strategies	Cost (USD)	Hours	Employees
CC	1080	225	18
FS	1660	279	17
DS	2965	360	22
CS	1200	90	18

The MCGP model formulation to select the optimal marketing strategy is shown in below:

$$\text{Min } Z = (S_1^+) + (S_2^+) + (S_3^+) + (S_4^+) + 0.563S_5^- + 0.586 S_6^- + 0.089S_7^- + 0.087S_8^- \tag{20}$$

Subject to :

$$1080X_1 + 1660X_2 + 2965X_3 + 1200X_4 + S_1^- - S_1^+ = 3800 \tag{21}$$
$$225 X_1 + 279 X_2 + 360 X_3 + 90 X_4 + S_2^- - S_2^+ = 1170 \tag{22}$$
$$18X_1 + 17X_2 + 22X_3 + 18X_4 + S_3^- - S_3^+ = 25 \tag{23}$$
$$X_1 + S_5^- = 1 \tag{24}$$
$$X_2 + S_6^- = 1 \tag{25}$$
$$X_3 + S_7^- = 1 \tag{26}$$
$$X_4 + S_8^- = 1 \tag{27}$$
$$X_1 + X_2 + X_3 + X_4 = 1 \tag{28}$$
$$X_i, X_j = 0 \text{ or } 1; s_i^+ s_i^- b_i \geq 1; i = 1, 2, ..., n, j = 1, 2, ..., m$$

Based on the proposed model formulation, the knowledge transfer strategy selection problem was solved using LINGO [27] on a Intel Core I5 CPU 3.00 GHz-based microcomputer. The optimal solutions are as follows: $x_1 = 0$, $x_2 = 1$, $x_3 = 0$ and $x_4 = 0$. This means that the solutions are optimum and the goals are fully achieved. Result of $x_2 = 1$ denoted that the Batik SMEs under the study shall focus on certain market segment as their main marketing strategy.

The study result shows that Indonesia Batik SMEs should focus on maintaining their customer base, which can leverage their target customers in certain fashion market segments. These results reflect the perception of Batik SMEs' customer and fashion creative industry. Strategy of focusing on certain market segment means that the SMEs owners/managers decisions should be based on SMEs resource limitation and their effort to gain most profit from their established market base segmentation on short term objectives. The strategy such as differentiation and customer-networked strategy could not suit with SMEs business characteristics because most of the SMEs owners/managers decisions are not made for medium and long term goals.

5. CONCLUSION

When SMEs is going to market their products, selecting the proper marketing strategy is always be the most challenging task for the owners managers. The marketing strategy selected can decide whether their company survives or falls to bankruptcy. To achieve business sustainability, the SMEs owner/managers should implement the best tool and important criteria to solve marketing strategy selection problems. This study illustrates how the DEMATEL, TOPSIS and MCGP model can be implemented to help SMEs owners/managers working in fashion creative industry to determine the optimal marketing strategy for their products. The study result shows that Batik SMEs as one of the fashion creative industry players in Indonesia should focus on maintaining and servicing their customers base under the dynamic market demands .

Bringing together MCDM and MCGP methods under one study suggests many directions. The study to implement integrated decision making problems for the selection process could easily be expanded to the decision-making process for other business management problems. These findings support the need for further studies since obtaining data in real life are often inaccurate, imprecise or vague. As a matter of fact, the weightings of marketing strategy criteria heavily depend on business strategies and priorities. Whereas the owner manager of SMEs sometimes subjectively and arbitrarily assigns their own weightings without discussing with the other stakeholders in the company, the selected strategy may not reflect what that company really needs.

ACKNOWLEDGMENT

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