Hybrid SWOT Approach for Strategic Planning and Formulation in China Worldwide Express Mail Service

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ABSTRACT
The traditional SWOT tool, which lists the S, W, O, T factors and groups them together to form some strategies, is convenient for analyzing but not effective enough for strategic formulation. This paper proposes a hybrid "three-stage" qualitative and quantitative SWOT model, trying to narrow the gap between strategic analysis and strategic formulation by first confirming the SWOT factors, second narrowing the selection area and last making optimal strategies. First, the SWOT-AHP model is used to analyze and evaluate the external and internal environment factors. Then we narrow the analysis field down to two levels by using strategic quadrilateral model, where the quadrant of the gravity centre is used to represent the market position. Finally correlation rules, including matrix calculations, maximum and sub-maximum sub-array techniques, are introduced to formulate the effective strategies, which focus on the most influential factors. A case study of EMS is conducted with the objective of validating the effectiveness in strategic planning and management.

Keywords: SWOT, Strategic quadrilateral model, Correlation rules, Strategy analysis, EMS.

1. Introduction

Facing with today's increasingly dynamic and competitive situation, it is significant for modern organizations to make long-term strategies [1]. In view of the importance of strategies, we can see that strategic planning and strategic management have attracted continuing interest from both researches and executives over past decades. Strategic management [2] is defined as the system of action programs which form sustainable competitive advantages for a corporation, including three basic elements: the formulation of a strategy; the implementation of a strategy; the control and evaluation of the strategy. However, before proceeding to these stages, a thorough analysis of the company's internal and external environment must first take place. Strategic planning is the process by which organizations establish long-term directions and formulate strategies to accomplish long-term objectives while taking into account relevant internal and external environmental variables [3]. Similarly, strategic planning and management should be used in the sector of express industry.

Currently, the development of E-commerce greatly promotes the express industry in China. It has reached to a good scale and got high profit since 1987. With the rapid development of e-commerce and mobile commerce, logistics delivery activities have become increasingly important in economic development and daily life [4]. Based on this active market environment, the private express enterprises meet rapidly expansion, but the market share of Worldwide Express Mail Service (EMS), the first domestic express enterprise, dropped year by year. Hong analyzed the post express in China and found out that the delivery time, fees and value-added services were not very well [5]. Yafan et al. analyzed the strengths and weaknesses of China post express and provided competition strategies [6]. In the face of an increasingly dynamic and competitive market, researchers suggested that EMS should conduct strategic planning and select long-term strategies.

Any organization, whether military, product oriented, service-oriented or even governmental, to

remain effective, must use a rational approach toward anticipating, responding to and even altering the future environment [7]. SWOT analysis is one of the most popular tools for strategic planning, where identifies internal factors (Strengths, Opportunities) and external factors (Weaknesses, Threats) of a company. Having identified these factors, we can find out effective strategies based on taking advantage of Strengths, eliminating the weaknesses, exploiting the opportunities or countering the threats. However, there are some insufficiencies with regard to measure and evaluation because of its qualitative analysis. It has been put forward in the relevant literature that these insufficiencies could be put aside by quantitative approaches, such as SWOT-AHP model [8, 9], knowledge-based model [10] and fuzzy multi-criteria model [11]. After using some analysis tools to make a checklist of internal and external, the factors were simply grouped together to form some strategies. But the general rules of the strategic formulation are provided to synthetically take advantage of strengths, minimize weaknesses, exploit opportunities, and neutralize threats. As the SWOT analysis results just simply list the factors or the weights of the factors, there is still a gap between strategic analysis and strategic formulation. To narrow the gap, researchers suggested some rules to pick out and consolidate key influential SWOT factors. For example, Weihrich [9] used "+", "0" to indicate relationships between two factors in different categories. Weisheng [12] improved this mechanism. He used a correlation index r to replace "+", "0". But the scope is still very large. We still need to select strategies through O/S, O/W, T/S, T/W four areas, which reduces the accuracy of the strategies. What's more, a company may not have the energy to formulate all these strategies. So it is necessary to find the accurate strategic area and carry out the most effective and suitable ones. The strategic quadrilateral model [13] is used in this paper to confirm the market position and narrow the strategic formulation scale.

The value of this research is to propose a hybrid "three-stage" SWOT strategic analysis and formulation model, trying to confirm the SWOT factors, narrow the selection area and make optimal strategies. The SWOT-AHP model is proposed to determine priorities among SWOT factors systematically. After analyzing the internal and external environments, the strategic quadrilateral model [13] is proposed to confirm the market position and we can pick out the optimal strategies on a smaller scale. Finally we make optimal strategies from the market position based on the correlation rules.

The paper consists of three sections. First, a critical review of SWOT analysis is proposed. Second, an improved SWOT model is established to assist in analyzing and formulating strategies, which includes AHP method, strategic quadrilateral model, matrix calculations, maximum and sub-maximum sub-array techniques. Then we conduct a case study of EMS with the objective of validating the proposed improved SWOT model. Moreover a discussion about the concrete strategies of EMS is expanded.

2. Literature review

SWOT is one of the most popular strategic analysis tools, which aims to identify the strengths and weaknesses of an organization and the opportunities and threats in the environment. Having identified these factors, strategies are developed which may build on the strengths, eliminate the weaknesses, exploit the opportunities or counter the threats [9, 14].

Weihrich [9] introduced the TOWS Matrix for a systematic analysis that facilitates matching the external threats and opportunities with the internal weaknesses and strengths of the organization, which included seven steps. Step 1, preparation of the enterprise profile, deals with (a) the kind of business; (b) geographic domain; (c) competitive situation; (d) top management orientation. Step 2 and 3 are to identify and evaluate the external factors, which may be categorized as economic, social, political and demographic factors, products and services, technology, markets and, of course, competition. Step 4, the audit of strengths and weaknesses, focuses on the internal resources of the enterprise. These factors may be found in management and organization, operations, finance, marketing and in other areas. Steps 5 and 6 are the activities necessary to develop strategies, tactics and more specific actions in order to achieve the enterprise's purpose and overall objectives. It includes the WT Strategy, the WO Strategy, the ST Strategy and the SO

Strategy. Finally, since an organization operates in a dynamic environment, contingency plans must be prepared (Step 7).

For a long time, SWOT method is used as a basic tool for strategic planning in different kinds of organizations. It is simple and easy to implement. Many papers have been reported to enhance its value and accuracy. Some tried to identify the internal and external factors, such as PEST framework, the five forces model or resource-based approach. Other researchers tried to quantify the factors. By the means of Analytic Hierarchy Process (AHP), the non-quantitative events in system engineering are converted to quantitative analysis, which reduces the difficulty and working load of the analysis [15]. So a commonly used decision analysis method, AHP is integrated with SWOT analysis to determine priorities for the factors included in SWOT analysis and make them commensurable [8]. The SWOT-AHP method is also been used to assess leisure agriculture in Henan province of China [9]. Fuzzy TOPSIS (Technique for Order Preference by Similarity to Ideal Solution) integrated with fuzzy AHP is used to develop fuzzy multi-criteria SWOT analysis [11]. Knowledge-based and decision making systems are the branches of artificial intelligence which are based on imitating the human demeanor in finding the pattern of solutions to problems [16]. For many companies which have vague ideas of their competitive strengths and weaknesses, opportunities and threats, the development of a knowledge-based system is described that can assist managers in performing a SWOT-analysis [10]. Despite the widely use for individual organizations, it can be expanded to groups. The quantified SWOT analytical method also adopts the concept of Multiple-Attribute Decision Making (MADM), which uses a multi-layer scheme to simplify complicated problems, and thus is able to perform SWOT analysis on several enterprises simultaneously [17]. Aslan [18] creates strategies from tows matrix for sustainable development of a group and establishes a holding from several companies by considering the regulations in the World Trade, recent developments in textile sector and raising conflicts among stakeholders.

We can see that the SWOT analysis process is well structured, with traditional and improved methods. However, when it comes to strategic formulation, the factors were simply grouped together to form some strategies. Currently, few researches are made to link the strategic analysis and the strategic options. Weihrich [8] suggested a mechanism to indicate the relationship between any two SWOT factors. He used a "+" to indicate a match between two factors in different categories, and a "0" to indicate a weak or nonexistent relationship. Weisheng [12] improved this mechanism. He used a correlation index r to replace "+", "0", where r=1 for a perfect match, r=0 meant a nonexistent relationship, and 0<r<1 meant different levels of relationship range from no relationship to a perfect match. These two methods both use some correlation rules to pick out key factors. We know that the concrete strategies have four kinds: WT, WO, ST and SO. But in re ality, as a company may not have the energy to formulate all these strategies, it is necessary to carry out the most effective and suitable ones. So the market position needs to confirm to narrow the strategic formulation scale first. Nowadays, few researchers focus on the narrow methods. The strategic quadrilateral model [13] is a general method established based on the weights of the SWOT factors.

Then we can get the market orientation based on the quadrant of the gravity center (shown in Table 1). If the center is in the first quadrant, the market position is called Aggressivity area, which means S and O factors are greater than others. So we should focus on taking advantage of strengths and exploiting opportunities. However, if the center is in the second quadrant, O and W factors are dominant ones. The market position is called Development area. The third quadrant represents Adjustment area, which means to neutralize threats and minimize weaknesses. Transformation area is in the forth quadrant, which means to make use of strengths to neutralize threats.

In conclusion, the literature review shows that SWOT is a powerful tool for strategic analysis and researchers propose many improved methods to make it better. However current improved SWOT analysis is not effective enough to formulate strategies. The main purpose of this work is to meet this need, confirming the market position of organization and pick out the optimal strategies from this suitable space.

Quadrant	Dominant factors	Market position
First	O/S	Aggressivity area
Second	O/W	Development area
Third	T/W	Adjustment area
Forth	T/S	Transformation area

Table 1. Comparison table of market position.

3. Hybrid SWOT Strategic Constructing Model

To create a hybrid SWOT strategic constructing model, we design the following three stages, as shown in Figure 1. The hybrid model narrows the strategies selection area and make optimal strategies through analysis and formulation, based on qualitative and quantitative methods. Stage 1, building SWOT-AHP model, is to analyze SWOT model, confirm S, W, O, T factors and identify the weights of the factors via AHP method. Stage 2, confirming the market position, is to build strategic quadrilateral model through the results of Stage 1, calculate the gravity center of the quadrilateral and confirm the market position. Stage 3, formulating optimal strategies, is to built the weighted interaction matrix based on the two dominant S, W, O, T factors, build the maximum and sub-maximum sub-array and formulate optimal strategies.

3.1 Stage 1: Building SWOT-AHP Model

AHP is a multi-criteria method for determining the relative importance of attributes within a group [19]. The importance could be accomplished by assigning the pair-wise comparison scale, which represents the relative importance of the criteria. Moreover, AHP method could help reduce the subjectivity by providing a consistency test mechanism to ensure consistency of judgments of strategic planners. The idea of applying the AHP technique within a SWOT framework is to systematically evaluate the SWOT factors and make them commensurable.

So in phase 1, we analyze the internal and external factors. By consulting experts, we can confirm the SWOT model. After that, we identify the weights of S, W, O, T groups and the factors in

each group via AHP. In this paper, all pair-wise comparisons are performed by the team of experts, which include external experts, chief of marketing dep., chief of planning dep.
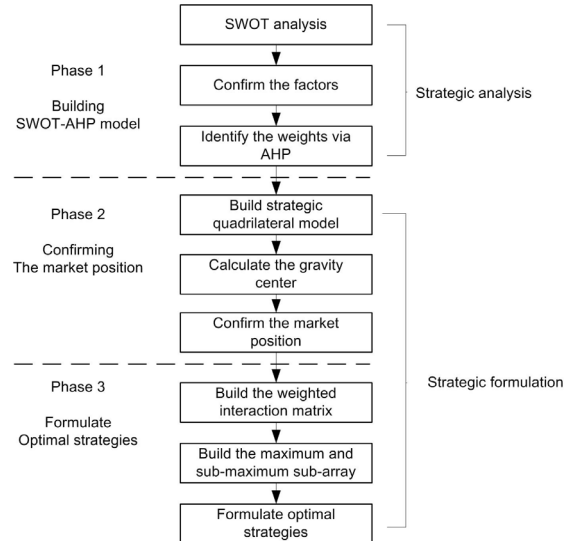

Figure 1. Three stages of hybrid SWOT strategic constructing model.

3.2 Stage 2: Confirming the market position

By using SWOT-AHP analysis, we can get the priorities of SWOT groups and factors within each group. The quadrilateral model could be built based on the priorities of SWOT groups, as shown in Figure 2. The priorities are marked in coordinate system, which stand for S, W, O, T. Then we connect each point in the order of S-O-W-T to build the quadrilateral. As the quadrilateral is a combination of S, W, O, T factors, we can confirm the market position based on the center of gravity (shown in Table 1).

We denote the quadrilateral area D. S and W can be expressed as $S(x1, 0)$, $W(-x2, 0)$, O and T can be expressed as $O(0, x3)$, $T(0, -x4)$. The center of gravity (x, y) can be expressed as:

$$(x, y) = \left(\frac{1}{A} \iint_D x\,dxdy, \frac{1}{A} \iint_D y\,dxdy \right) \qquad (1)$$

$$A = \iint_D dxdy = \frac{1}{2}(x_1 + x_2)(x_3 + x_4)$$

According to the analysis, we can get the center of gravity (x, y), as in formula (2), (3).

$$x = \frac{1}{3}(x_1 - x_2)$$ (2)
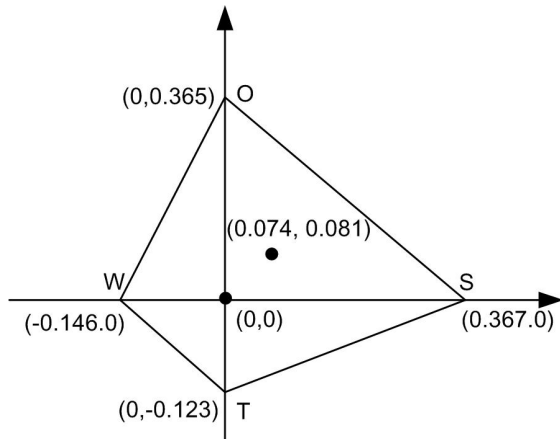
$$y = \frac{1}{3}(x_3 - x_4)$$ (3)

Figure 2. SWOT strategy quadrilateral.

3.3 Stage 3: Formulating optimal strategies

After the analysis in 3.1, all the SWOT factors are agreed and their relative importance is determined. Based on the rules of strategy decision, strategic options should take advantage of strengths, minimize weaknesses, exploit opportunities, and neutralize threats. If the strategic area is in O/S area, we can narrow our option space and focus on O/S strategy set. But in reality, a company may not have the energy to make use of all the strengths or exploit all the opportunities. So we should dig the relationship between SWOT factors and find the strong match ones. In this paper, we use the improved rules proposed by Weisheng [12] to select the optimal strategies, comprised of the following three steps:

(1) Build the weighted interaction matrix C[O/S] (assuming the company in Aggressivity strategic position). In mathematical language, all the strength factors can be listed in the set

$$S = \{S_1, S_2, S_3, ..., S_n\}$$ (4)

and their relative importance can be expressed as

$$\omega_S = \{\omega_{S1}, \omega_{S2}, \omega_{S3}, ..., \omega_{Sn}\} \quad (\sum_{i=1}^{n} \omega_{S_i} = 1)$$ (5)

Similarly, all the opportunity factors and corresponding importance can be expressed as

$$O = \{O_1, O_2, O_3, ..., O_m\}$$ (6)

$$\omega_O = \{\omega_{O1}, \omega_{O2}, \omega_{O3}, ..., \omega_{Om}\} \quad (\sum_{j=1}^{m} \omega_{O_j} = 1)$$ (7)

The relationship of O and S factors is identified as r ($0 \le r \le 1$). If $r_{mn}=0$, then there is no match between O_m and S_n. A higher value of r_{mn} indicates stronger match between two factors. So we can express the weighted interaction matrix C[O/S] as

$$C[O/S] = \begin{array}{c} \\ O_1 \\ O_2 \\ ... \\ O_m \end{array} \begin{bmatrix} \omega_{O1}r_{11}\omega_{S1} & \omega_{O1}r_{12}\omega_{S2} & \cdots & \omega_{O1}r_{1n}\omega_{Sn} \\ \omega_{O2}r_{21}\omega_{S1} & \omega_{O2}r_{22}\omega_{S2} & \cdots & \omega_{O2}r_{2n}\omega_{Sn} \\ ... & ... & ... & ... \\ \omega_{Om}r_{m1}\omega_{S1} & \omega_{Om}r_{m2}\omega_{S2} & \cdots & \omega_{Om}r_{mn}\omega_{Sn} \end{bmatrix}$$ (8)

Where $R_{mn} = \omega_{Om}r_{mn}\omega_{Sn}, 0 \le R_{mn} \le 1$

(2) Build the maximum sub-array MS(C). The maximum sub-array approach is introduced in order to identify what the maximal use of opportunities and strengths is.

Although all elements in the matrix are nonnegative since $0 \le R_{mn} \le 1$, the entire array will not be taken as the maximum sub-array since we want to exclude any zero element. If Rmn=0, no relationship exists between an opportunity factor and a strength factor.

Then strength factor n cannot used to exploit the opportunity factor m. Hereby, we must modify the traditional algorithm in maximum sub-array to exclude the zero elements by assuming that $0 \le R_{mn} \le 1$. The maximum sub-array MS(C) can be expressed as

$$MS(C) = \begin{array}{c} \\ O_p \\ ... \\ O_q \end{array} \begin{array}{cc} S_x & ... & S_y \\ \left[\begin{array}{ccc} R_{px} & ... & R_{py} \\ ... & ... & ... \\ R_{qx} & ... & R_{qy} \end{array}\right] \end{array}, \text{Where} \qquad (9)$$

$1 \le x \le y \le n,\ 1 \le p \le q \le m,\ 0 < R \le 1$ and

sum $(R_{px} + ... + R_{py} + ... + R_{qx} + ... + R_{qy})$ is maximum

Then we can express the optimal strategic set as

$$\left[O/S\right]_{MS} = \left[O_p,...,O_q;S_x,...,S_y\right] \qquad (10)$$

(3) Build the sub-maximum sub-array SMS(C). In real cases, it is possible that some strategic options would still be effective even though the relevant strength and opportunity factors might not appear in the maximum sub-array. An array where the sum of all elements in the matrix is slightly smaller should not necessarily be neglected since the strength and opportunity factors concerned can also inspire effective strategic options. For example, if ωOm and ωSn are relatively large, rmn is oppositely small, then it is possible that Rmn will not be included in MS(C). However Om and Sn are important to the company as their high weights. So these two factors should also be concerned to make better strategies. Inspired by this, we build the sub-maximum sub-array SMS(C), where the sum of all elements in the matrix is slightly smaller, expressed as

$$SMS(C) = \begin{array}{c} \\ O_{p'} \\ ... \\ O_{q'} \end{array} \begin{array}{cc} S_{x'} & ... & S_{y'} \\ \left[\begin{array}{ccc} R_{p'x'} & ... & R_{p'y'} \\ ... & ... & ... \\ R_{q'x'} & ... & R_{q'y'} \end{array}\right] \end{array} \qquad (11)$$

$1 \le x' \le y' \le n, 1 \le p' \le q' \le m, 0 < R \le 1$ and

sum $(SMS(C)) <$ sum $(MS(C))$

So the optimal strategic set is

$$\left[O/S\right]_{SMS} = \left[O_{p'},...,O_{q'};S_{x'},...,S_{y'}\right] \qquad (12)$$

In summary, this section introduces a new improved strategic analysis and formulation method by bringing quantifying techniques including AHP analysis, strategic quadrilateral model and the correlation rules into traditional SWOT analysis. The new approach comprises the following six steps:

Step 1: Confirming the SWOT model by analyzing the internal and external factors.

Step 2: Applying the AHP within the SWOT framework to evaluate the SWOT factors.

Step 3: Building the strategy quadrilateral model to show the market position of the business.

Step 4: Establishing the weighted interaction matrix to express the relationship between any two factors in different groups.

Step 5: Building the maximum sub-array by modifying the traditional algorithm in maximum subarray to exclude the zero elements by assuming that, and select the optimal strategies from the array.

Step 6: Building the sub-maximum sub-array SMS(C) where the sum of all elements in the matrix is slightly smaller, and select the optimal strategies from the array.

4. Case study: Worldwide Express Mail Service in China

4.1 Background

The express service in China has reached to a good scale and got high profit since 1987. By the end of August 2013, express income has amounted to 162 billion RMB, with year-on-year growth of more than 25%. As the e-commerce's booming in China, the development will gather pace. In China, the express business was originally operated by Worldwide Express Mail Service (EMS), which was a state enterprise. Unfortunately, the E-commerce boom didn't help EMS boost its market share. By the intense competition of private and international enterprises, its express market share decreased to less than 30%. The E-commerce express market share was even less than 5%.

Actually, as the first domestic express enterprise, EMS has powerful transportation network advantage. Its business could cover almost all areas in China. In the face of an increasingly dynamic and competitive market, EMS must develop a long-term strategy in order to achieve the competitive advantage.

4.2 Methodology of the Case Study

We first analyze the internal and external factors of EMS based on the SWOT model, guided by external experts, chief of marketing dep., chief of planning dep.

Internal analysis: EMS has powerful transportation network advantage, high brand cognitive in China. Its IPO in 2012 can strengthen the processing capacity by purchasing logistics equipment. However, the redundant organization management, high price, slow speed, backward technology make it weaker. So the S and W factors can be concluded:

S= {S1 High Brand cognitive, S2 Good Service quality, S3 IPO, S4 Large network coverage};
W= {W1 Redundant organization management, W2 High price, W3 Slow transportation speed, W4 Backward information technology}.

External analysis: Despite the intense competition and low service, the whole industry is in the growth period. Meanwhile the policies, e-commerce boom, new technologies inject strong driving forces into the industry. So we can get the O and T factors:

O= {O1 Express delivery was listed in the 12th five-year plan in China, O2 National standards of express service was carried out, O3 Steady growth of GDP, O4 Rapid development of express industry, O5 E-commerce boom, O6 Rapid development of information technology }.

T= {T1 Intense competition of international express industry, T2 Intense competition of ordinary express industry, T3 Intense competition of e-commerce express industry, T4 Low customer satisfaction}.

Then the SWOT groups' priorities and the priorities in each group are calculated based on AHP model:

{WS,WW,WO,WT}={0.367,0.146,0.365,0.123};
{WS1,WS2,WS3,WS4}={0.229,0.193,0.070,0.508};
{WW1,WW2,WW3,WW4}={0.144,0.271, 0.423,0.162};
{WO1,WO2,…,WO6}={0.074,0.081,0.081,0.189,0. 330,0.224};
{WT1,WT2,WT3,WT4}={0.110,0.205,0.416,0.270}.

The quadrilateral model could be built based on the priorities of SWOT groups, where x1= 0.367, x2= 0.146, x3= 0.365, x4= 0.123. The center of gravity (x, y) equals to (0.074, 0.081), based on formula (2)-(3), represented that EMS is in this O/S area. In reality, EMS can't use all the strengths to exploit any opportunities. So we build the weighted interaction matrix C[O/S] shown in Figure 3. By applying the formula (8), the matrix can transform to matrix shown on the right of the Fig. 3.

After that, the task turns to the search of a maximum sub-array and some slightly sub-maximum sub-arrays based on formula (9) and (11) shown in Figure 4 and 5.
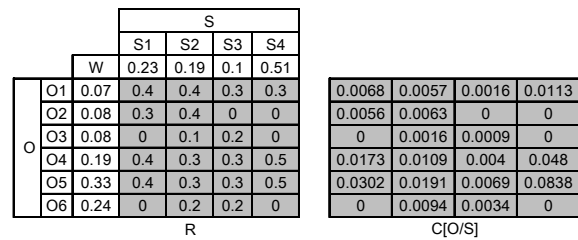
		S								
		S1	S2	S3	S4					
	W	0.23	0.19	0.1	0.51					
O	O1 0.07	0.4	0.4	0.3	0.3	0.0068	0.0057	0.0016	0.0113
	O2 0.08	0.3	0.4	0	0	0.0056	0.0063	0	0
	O3 0.08	0	0.1	0.2	0	0	0.0016	0.0009	0
	O4 0.19	0.4	0.3	0.3	0.5	0.0173	0.0109	0.004	0.048
	O5 0.33	0.4	0.3	0.3	0.5	0.0302	0.0191	0.0069	0.0838
	O6 0.24	0	0.2	0.2	0	0	0.0094	0.0034	0
		R				C[O/S]			

Figure 3. The weighted interaction matrix of EMS.

	S1	S2	S3	S4
O1	0.0068	0.0057	0.0016	0.0113
O4	0.0173	0.0109	0.004	0.048
O5	0.0302	0.0191	0.0069	0.0838
O2	0.0056	0.0063	0	0
O3	0	0.0016	0.0009	0
O6	0	0.0094	0.0034	0

MS[C]

Figure. 4. The maximum sub-array of EMS.

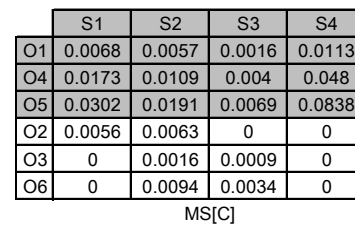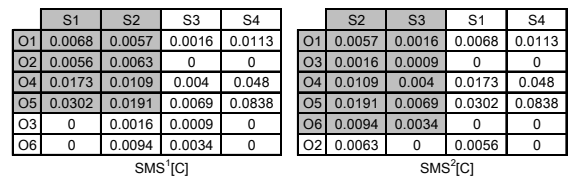|	S1	S2	S3	S4			S2	S3	S1	S4
O1	0.0068	0.0057	0.0016	0.0113		O1	0.0057	0.0016	0.0068	0.0113
O2	0.0056	0.0063	0	0		O3	0.0016	0.0009	0	0
O4	0.0173	0.0109	0.004	0.048		O4	0.0109	0.004	0.0173	0.048
O5	0.0302	0.0191	0.0069	0.0838		O5	0.0191	0.0069	0.0302	0.0838
O3	0	0.0016	0.0009	0		O6	0.0094	0.0034	0	0
O6	0	0.0094	0.0034	0		O2	0.0063	0	0.0056	0
	SMS¹[C]						SMS²[C]			

SMS^1[C] SMS^2[C]

Figure 5. The maximum and sub-maximum sub-arrays of EMS.

The shadow of Figure 4 represents the optimal strategic set:

[O/S]MS=[O1,O4,O5;S1,S2,S3,S4],
where sum(MS)=0.24564.

[O/S]MS informs to make use of O1, O4 and O5 by taking advantage of its existing strengths. The combined strategies are as follows:

Integrating logistics resources by using national policies. The national policies suggested forming some large-scale excellent companies in 2015.

EMS, the only state-owned express delivery company, should hold these opportunities to integrate with the private express companies horizontally and with airway, railway and highway transportation enterprises vertically.

Developing new products by exploiting the express and e-commerce boom. In the e-commerce express market, EMS should exploit differentiated products, develop multi-variety and personalized service to meet customers' diverse needs.

The slightly sub-maximum sub-arrays in Figure 5 suggest the optimal strategic sets to be [O/S]SMS1=[O1,O2,O4,O5;S1,S2], where sum(SMS1)=0.10190.

And [O/S]SMS2=[O1,O3, O4,O5,O6;S2,S3], where sum(SMS2)=0.06346.

So we should make use of all the opportunities (O1-O6) by exploiting its S1, S2 and S3. We propose the concrete strategies:

Implementing marketing strategy by using its high brand cognitive and good service quality. EMS is the earliest express enterprise and has a high reputation in China. Its brand cognitive and service quality have important strategic value. Through advertising and public relations communication, EMS can publicize its products and services to enhance the positive image and increase customer loyalty.

Promoting logistics infrastructure by utilizing the financial advantages. With the IPO of EMS, its circulating fund will be more abundant to step up the distribution facilities.

EMS should speed up the construction of express logistics park and Expanding the independent airway network based on the financial advantages.

5. Conclusions

The research described in this paper has shown that by introducing quantifying techniques including AHP analysis, strategic quadrilateral model and the correlation rules into traditional SWOT analysis, we can distill the proper strategies from the dubious internal and external factors. The improved "three-stage" method makes the traditional SWOT analysis more practical. It confirms the SWOT factors, narrows the analysis field down to two different levels and at last consolidates it into MS and SMS which put more focus on the most influential factors, thus better assisting strategic planning and formulation.

The case study of EMS brings great help for the long-term strategic making. MS shows that EMS should focus on logistics resources integration by using national policies, and new product development by exploiting the express and e-commerce boom. SMS1 and SMS2 suggest more emphasis should be placed on marketing strategy and infrastructure promotion by using its high brand cognitive, good service quality and financial advantage.

The presented results are of practical importance with respect to two aspects: i) Hybrid SWOT approach proposes a new perspective to strategic planning and narrow the gap between strategic planning and strategic formulation; ii) In a broader sense, we also make a case for analyzing EMS in China and give some strategic suggestions.

Further research is recommended to take the decision preferences into consideration, as the strategic formulation is made by human beings.

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