# A Workable Strategy-formulation Framework

Yang Lijie

School of management, Hebei University, Wu Si Dong Road, Baoding, China

ylj_hd@126.com

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**Abstract.** This study aims to build a more workable strategy-formulation framework by improving the comprehensive framework in David's (2016) textbook Strategic Management Concepts[1]. This new framework, containing 5 steps namely determining internal and external key factors (IEKF), generating strategies by matching internal and external key factors in a SWOT Matrix (SWOTM), determining of the corporate level strategy by combining IFE, EFE and SWOT (IES), Hierarchically clustering strategies (HCS), and evaluating strategies by using QSPM, could be more workable for the three contributions: first, determining corporate strategy by combining usage of IFE, EFE and SWOT; second, modifying the rule for assigning ratings in EFE in the step when using SWOT to determine corporate strategy; three, strategies are hierarchically clustered and evaluated in three levels, i.e. corporate strategy, competitive strategy, and functional strategy, respectively. No real data for application is the limitation of the study.

## 1. Introduction

The Strategy-Formulation Analytical Framework in the textbook namely Strategic Management Concepts (David, 2016) provided a very comprehensive strategy-formulation procedure. Plentiful tools were suggested in the framework including External Factor Evaluation (EFE) Matrix, Internal Factor Evaluation (IFE) Matrix, and Competitive Profile Matrix (CPM) in the input stage; Strengths-Weaknesses-Opportunities-Threats (SWOT) Matrix, Boston Consulting Group (BCG) Matrix, Strategic Position and Action Evaluation (SPACE) Matrix, Internal-External (IE) matrix, Grand Strategy Matrix in the matching stage, and Quantitative Strategic Planning Matrix (QSPM) in the decision stage. Among these tools, SWOT analysis is the only one that creates alternative strategies based on the internal and external factors of a specific enterprise. That is why SWOT is such a popular strategic management tool being taught and used by countless students, practitioners and researchers. While SWOT is so pervasive, and frequently appears in textbooks of strategic management, the tool itself has been subjected to analysis to the least extent. It does have some limitations both in the tool itself and the way it has been used for many decades. The tool is significant in generating as many as strategic alternatives but does overemphasize a single internal or external factor in formulating strategies. In addition, Quantitative Strategic Planning Matrix (QSPM) is the only tool to evaluate and select strategy comparatively but is not without limitation regarding to its isolation with SWOT analysis.

This study aims to suggest a more workable strategy-formulation framework that uses four of the above mentioned tools, i.e. EFE, IFE, SWOT, and QSPM. Among these matrixes, EFE and IFE are the foundation and provide all information for both SWOT and QSPM. All these tools are not new. However, this study is trying to improve the formal framework in two points to make the tools link to each other better and be more workable.

The first improvement is to extend SWOT analysis tool by using it in two steps: "generating strategies" and "determining direction of strategy" consequently. The "determining direction of strategy" step is much like the function of IE matrix in the formal framework. But, IE determines such strategic directions as "grow and build", "hold and maintain", and "harvest and divest" while SWOT determines strategic directions containing real strategic alternatives generated according to internal and external factors. By only so doing, there are real strategic alternatives input to the QSPM to be chosen.

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The second improvement is the different rules of ranking internal and external factors while applying SWOT with applying QSPM. The reason why we need to rank key factors in different ways is that, in the SWOT's case, strategies are generated according to internal and external factors, therefore, the effects of all internal and external factors should be evaluated objectively in order to generate befitting strategies. On the contrary, in the QSPM's case, strategic alternatives have been there, the rankings indicate the compatibility of the strategy on considering of every specific factor, meaning the effects of the factors should be evaluated on the base of specific strategy.

## 2. The development of the new strategy-formulation framework

The three-stage procedural provided by David includes input, matching, and output [1]. The EFE and IFE in the input stage provided information directly for SWOT to match strategies, for IE to choose specific strategy from the alternatives provided (ignoring other matric those are much like IE but use merely part of data from IFE and EFE). There are problems. First, a mass of alternative strategies, including corporate level, unit level and functional level, can be generated by matching internal factors with external factors via the usage of SWOT, but can not be input directly to QSPM for evaluation because the alternative levels of the strategies. Second, a corporate level strategy has been determined by IE matrix hereby no alternative strategies are provided to be input to QSPM for evaluation. To solve these two problems, a 5-step framework should be built up. The 5 steps are: (1) determining internal and external key factors (IEKF), (2) generating strategies by matching internal and external key factors in a SWOT Matrix (SWOTM), (3) determining of the corporate level strategy by combining IFE, EFE and SWOT (IES), (4) Hierarchically clustering strategies (HCS), and (5) evaluating strategies by using QSPM.

### 2.1. Determining of internal factors and external key factors (IEKF)

The most important step of strategic planning is analysis of business environment composed of external and internal factors. External factors are opportunities and threats that affect positively or negatively to organizations in a specific industry. Weihrich's (1982) grouped external factors into following categories: economic, social and political factors, products and competition, demographic factors, market and competition, plus others [2]. Internal factors are strengths and weaknesses on regarding to an organization's resources and abilities that are crucial to the competition and success in its industry. Crucial internal factors are different among industries while strengths and weaknesses differ great from firm to firm. Weihrich categorized internal factors conveniently into the following: management and organization, operations, finance, other factors such as firm's image and inventions [2].

According to Kotler, when SWOT method is applied for a firm, the strengths and weaknesses, which usually characterize its "internal" environment, are examined in regard with issues like: resources, production methods, marketing decisions, skills and management. The opportunities and risks describe the "external" environment, which is distinguished in terms of macro- and micro-environment; the macro-environment of a firm formed by demographic, economic, political, legal, technological, social and cultural factors and the micro-environment consists of customers, competitors and distributors[3].

Brainstorming, focused group discussion and Delphi followed by questionnaire methods with participation of managers from the same industry can be used to determine about 10 key internal and about 10 external factors that are crucial for business succeed in an industry. The top and middle level managers from a specific enterprise should identify opportunity and threat factors from external environment, at the same time, verdict the strengths and weaknesses of this enterprise comparing to its competitors respecting to the key internal factors.

### 2.2. Generating strategies by using SWOT

SWOT analysis has been recognized as a valuable tool of situation analysis since 1960s, and is

included in most textbooks on enterprise strategy after Weihrich's demonstrating work[4]. SWOT analysis is a popular tool for business marketing and strategy students, and has been used more than any other strategic planning tool by countless practitioners, researchers [5]. Stacey describes SWOT analysis as: a list of an organization's strengths and weaknesses as indicated by an analysis of its resources and capabilities, plus a list of the threats and opportunities that an analysis of its environment identifies. Strategic logic obviously requires that the future pattern of actions to be taken should match strengths with opportunities, ward off threats, and seek to overcome weaknesses [6] (p. 52). It is assumed that a firm will maximize its strengths while working to overcome weaknesses and to capitalize on new opportunities while keeping an eye on threats. Thus, opportunities arise from the macro or external environment and hence need to be "seized" (grabbed) by trying to constantly "leverage" the internal strengths to create a match. Since threats exist in the external environment, one needs to be "aware" of the same and try to "improve" upon the internal weaknesses so as to reduce the vulnerability to these threats.

Though SWOT has been ranked as the most frequently used tool for analyzing the business environment [7], it is actually a effective tool for generating strategies by matching strengths and weaknesses with opportunities and threats associated with an organization. Dyson further commented that the ability of SWOT analysis to integrate internal and external environments of a business allows effective strategy formulation [8].

Matching external and internal critical success factors is the key to effectively generating feasible alternative strategies [1]. This can be conducted by constructing a SWOT matrix of 3*3 grid as shown in the Figure 1.

EFs listed in the two lower cells labeled "O" and "T" in the left column, while IFs listed in the right two cells labeled "S" and "W" in the upper row. Matching every internal factor with each external factor would generate four types of Strategic alternatives: SO (strengths-opportunities) strategies, WO (weaknesses-opportunities) strategies, ST (strengths-threats) strategies, WT (weaknesses-threats) strategies which locate in the corresponding cells.

| | S<br>$S_1$ $S_2$ | W<br>$W_1$ $W_2$ |
|---|---|---|
| O<br>$O_1$ $O_2$ | SO<br>$S_1O_1$ $S_2O_1$ $S_1O_2$ $S_2O_2$ | WO<br>W1O1 W1O2 W2O1 W2O2 |
| T T1 T2 | ST<br>S1T1 S2T1 S1T2 S2T2 | WT<br>W1T1 W1T2 W2T1 W2T2 |

Figure 1 A Matching SWOT Matrix

It requires good judgment and innovative ideas to generate feasible strategic alternatives by matching key internal and external factors, and there is no one best set of matches. The brainstorming method among others can be used to create as many as alternatives.

The purpose of conducting a SWOT analysis is to provide a strategic direction for business practices [9] rather than only generating types of strategies. However, a single internal or external factor is overemphasized when creating strategies in the matching process, and, many strategies are overlap or incompatible. For example, SO strategies and WT strategies are normally contradictory. Most researchers, including Weihrich and David, evaluated and selected strategies by qualitative analysis. However, it is both difficult and cursory to make choice among a mass of strategies. Other tools or a quantification step is needed to determine the strategic direction and prepare strategic alternatives for further evaluation and selection by using QSPM.

### 2.3. Determining direction of strategy by combination of EFE, IFE and SWOT

SWOT analysis is effective to profile and enumerate issues but dose not concentrate on specific strategies that takes advantage of opportunities while leveraging strengths and working to overcome weaknesses, at the same time, avoiding the negative effects of threats. Although the analysis successfully pinpoints the factors, individual factors are usually described briefly and very generally. There should be considerable difficulties with the interpretation of qualitative data in a scientific

way, and these difficulties can include that of generalization and the problem of the openness of the data to a variety of interpretations [10][11]. SWOT analysis possesses deficiencies in the measurement and evaluation steps. Additional tools of analysis and ranking variables within SWOT matrix are needed steps.

Winer suggested Multi-Strategic Planning (MSP) should follow SWOT analysis and insisted ranking objectives by logical reasoning rather than subjective priority setting [12]. In MSP a long list of possible strategies is developed and matched with objectives and results from SWOT analysis to result in a hierarchy of selected strategies.

Kangas et al. agree the needs for quantification and recommend adding Multiple Criteria Decision Support (MCDS) methods along with SWOT to determine analytical priorities for the identified factors [13]. In their opinion, without ranking or weighting of the SWOT variables, planners and entrepreneurs may assume each of the variables influencing new venture creation are equal in their scope and importance. They illustrate using MCDS for prioritizing information from the SWOT analysis and ranking various proposed strategic recommendations in a case study.

In an earlier study, Kurttila, Pesonen, Kangas and Kajanus presented a hybrid method called A'WOT that makes combined use of Analytic Hierarchy Process (AHP) and SWOT [14]. They consider the usage of AHP assists in carrying out SWOT more analytically. A'WOT also enables choice alternatives to be evaluated with respect to each SWOT factor and to each SWOT group. Once the importance of different SWOT groups has also been determined, the choice alternatives can be holistically prioritized with respect to internal and external operational environments. Yüksel and Da˘gdeviren, considering AHP technique no allowing for measurement of the possible dependencies among the factors, proposed algorithm using the analytic network process (ANP), which allows measurement of the dependency among the strategic factors, as well as the independence between the factors [15]. Dependency among the SWOT factors is observed to affect the strategic and sub-factor weights, as well as to change the strategy priorities. The methods are effective and straightforward enough for practical use. However, cardinal pairwise comparisons might be too difficult to perform when dealing with laymen as decision makers.

Hai and Tsou adopted the concept of Multiple-Criteria Decision Making (MCDM) or a multi-hierarchy scheme to select the competitive strategy of a University by use of a quantifiable SWOT method [16]. The factors of SWOT are voted on and weighted to assess the strategic alternatives obtained according to the result of overlapping SWOT analysis, and identify the best one. A questionnaire survey was conducted and the order of priority was arranged based on the number of votes with the degree of importance by the participants. Simple score sheets were provided to assist the manager to record the scores for each strategy on each of the sub-criteria. This vote-ranking method is not only able to overcome the condition whether the independent request between factors, but the participant also can carry on the voting on any elements of SWOT, and for many times.

Budiman et al. conducted SWOT analysis by combining Internal Factor Analysis Summary (IFAS) and External Factor Analysis Summary (EFAS) to determine strategic direction [17]. They collected qualitative data (Strengths, Weaknesses, Opportunities and Threats factors) through Focused Group Discussion (CGD), and collected quantitative data (weights and values of factors) through interviews and questionnaires with internal and external stakeholders and chose to use mixed SO strategies or called as the aggressive strategy to win the market competition. The developed SO strategies are: creating distribution network with the customers and utilizing renewable technology. IFAS and EFAS methods are synonyms for IFE and EFE methods.

This study follows David' s method when constructing EFE and IFE matrices. They are shown in Table 1 and Table 2. EFs and IFs have been collected at the first step.

Weight is industry-based and ranges from 0 (not important) to 1 (all important) indicating the relative importance of each EF to being successful in the industry. The sum of all weights equals 1.

Table 1 External Factor Evaluation (EFE) Matrix

| EF | Weight | Rating | Weighted Score |
|---|---|---|---|
| O1 | 0-1 | 3/4 | - |
| O2 | - | 3/4 | - |
| O3 | - | 3/4 | - |
| O4 | - | 3/4 | - |
| O5 | - | 3/4 | - |
| O6 | - | 3/4 | - |
| T1 | - | 1/2 | - |
| T2 | - | 1/2 | - |
| T3 | - | 1/2 | - |
| T4 | -- | 1/2 | - |
| Total | 1 | | 1-4 |

What needs to be emphasized here is the different rule for assigning ratings. David assigned a rating between 1 and 4 to EFs based on effectiveness of the firm's current strategies responding to the EF, where 1 means the response of current strategies to this EF is poor, while 2 means the response is average, 3 indicates above average and 4 indicates the response is superior. Following David's rule, the total weighted score must indicate the effectiveness of the current strategies responding to the external environment. In this study, ratings are also firm-based. The difference is that ratings are assigned based on the extent and direction of EFs effect to the firm. The rating 1 is assigned to the EF if it affect the firm strongly and negatively, where 2 indicate the EF affect the firm slightly and negatively, 3 indicates a slight and positive effect, and 4 means the EF has significant positive effect on the firm. So, most opportunities will be assign a rating of 3 or 4 because EFs affecting the industry positively may be in great chance have positive effect to the firm. But it is not guaranteed. For example, government policy that promoting an industry may be more helpful to large firms and makes small firm's falling behind more severe therefore more difficult to survival. Thus, this EF will be rating 4 for large firm and rating 2 for small firm. A total weighted score of above 2.5 indicates a favorable external environment of the firm.

When it comes to the IFE developing, the weights and ratings are all determined by following the way of David: "The weight assigned to given factor indicates the relative importance of the factor to being successful in the firm's industry"; "Assign a 1-to-4 rating to each factor to indicate whether that factor represents a major weakness (rating 1), a minor weakness (rating 2), a minor strength (rating 3), a major strength (rating 4) " [1](p. 152). A total weighted score of above 2.5 indicates a strong internal position of the firm.

Table 2 Internal Factor Evaluation (IFE) Matrix

| EF | Weight | Rating | Weighted Score |
|---|---|---|---|
| S1 | 0-1 | 3/4 | - |
| S2 | - | 3/4 | - |
| S3 | - | 3/4 | - |
| S4 | - | 3/4 | - |
| S5 | - | 3/4 | - |
| W1 | - | 1/2 | - |
| W2 | - | 1/2 | - |
| W3 | - | 1/2 | - |
| W4 | - | 1/2 | - |
| W5 | - | 1/2 | - |
| Total | 1 | | 1-4 |

Strategic direction is determined by the total weighted score of EFE and that of IFE, alike the Internal and External (IE or GE) matrix [1](p 217). If both the sum of weighted scores from EFE and IFE are above 2.5, strategies in the SO cell (Development) should be more adaptive, where EFE >2.5 and IFE< 2.5, the strategic direction locates in WO cell (Reverse), where EFE <2.5 and

IFE> 2.5 in ST cell (Diversification), where EFE <2.5 and IFE< 2.5 in WT cell (Divest), as shown in Figure 2.

| EFE 2.5 | IFE 2.5 | |
|---|---|---|
| | SO Development | WO Reverse |
| | ST Diversification | WT Divest |

Figure 2. Strategic Direction (Corporate Level Strategy)

Delphi and questionnaire can be used for data collection for determining their weights and ratings of EFs and IFs.

### 2.4. Hierarchical clustering strategies

We can create corporate level and competitive strategies, as well as functional level strategies as key internal and external factors are variety. For example, one of a firm's strength is lower cost while a threat from external environment is high price-sensitive customers, then a cost-leadership competitive strategy will be created. While the external factor of great growth potential in the industry matching with easy bank loans will lead a developing strategy which belongs to corporate-level strategy. In fact, SWOT can match out strategies, tactics and actions, while tactics are necessary to implement the strategies, and the more specific actions support tactics [2]. The combination of EFE, IFE and SWOT helps managers to determine the strategic direction, i.e. one of the four conceptually distinct alternative strategies (SO, WO, ST or WT). Specific strategy must be selected to implement for corporate level, business unit level (competitive strategy) and function level. For this reason, the selected alternative strategies must be listed separately for each level by hierarchical clustering. This step needs managers' judgment to cluster inconsistent strategies in the same level. Alternative strategies of the same cluster will be evaluated and compared to each other, and the best one for every cluster will be selected to implement by using the tool namely QSPM.

### 2.5. Evaluating and selecting strategies by using QSPM

The QSPM is a tool to evaluate alternative strategies objectively based on the previously identified EFs, IFs and the corresponding weights. The basic format of QSPM is illustrated in Table 3.

Both EFs and IFs are listed in the left column of the QSPM. The respective weights are recorded in the second left column. The alternative strategies are listed in the top row. Attractiveness Score (AS) is the values, ranging from 1 (not attractive) to 4 (highly attractive) that indicate the relative attractiveness of each strategy with regard to the respective EF or IF. In other word, AS indicates the effectiveness of the strategy responding to the EFs and IFs respectively. Total Attractiveness Score (TAS) is a weighted AS, and the sum of TAS of a column under a strategy indicates the attractiveness of this strategy. The higher the sum of TAS the more attractive the corresponding strategy is. Thus, the best strategy is selected. Every strategic cluster should conduct QSPM one by one. This means that the evaluation of strategies is conducted in three levels, i.e. corporate strategy, competitive strategy, and functional strategy, respectively. The AS values could be obtained by carrying questionnaire survey with managers as participants.

Table 3 Quantitative Strategic Planning Matrix (QSPM)

| | | Alternative strategies | | | | | |
|---|---|---|---|---|---|---|---|
| | | Strategy A | | Strategy B | | Strategy C | |
| EF/IF | Weight | AS | TAS | AS | TAS | AS | TAS |
| S1 | 0-1 | 1-4 | - | 1-4 | - | 1-4 | |
| S2 | - | 1-4 | - | 1-4 | - | 1-4 | |
| S3 | - | 1-4 | - | 1-4 | - | 1-4 | |
| S4 | - | 1-4 | - | 1-4 | - | 1-4 | |
| S5 | - | 1-4 | - | 1-4 | - | 1-4 | |
| W1 | - | 1-4 | - | 1-4 | - | 1-4 | |
| W2 | - | 1-4 | - | 1-4 | - | 1-4 | |
| W3 | - | 1-4 | - | 1-4 | - | 1-4 | |
| W4 | - | 1-4 | - | 1-4 | - | 1-4 | |
| W5 | - | 1-4 | - | 1-4 | - | 1-4 | |
| O1 | - | 1-4 | - | 1-4 | - | 1-4 | |
| O2 | - | 1-4 | - | 1-4 | - | 1-4 | |
| O3 | - | 1-4 | - | 1-4 | - | 1-4 | |
| O4 | - | 1-4 | - | 1-4 | - | 1-4 | |
| O5 | - | 1-4 | - | 1-4 | - | 1-4 | |
| O6 | - | 1-4 | - | 1-4 | - | 1-4 | |
| T1 | - | 1-4 | - | 1-4 | - | 1-4 | |
| T2 | - | 1-4 | - | 1-4 | - | 1-4 | |
| T3 | - | 1-4 | - | 1-4 | - | 1-4 | |
| T4 | - | 1-4 | - | 1-4 | - | 1-4 | |
| Sum | 2 | | 2-8 | | 2-8 | | 2-8 |

## 3. Conclusion

This study suggests a strategy-formulation framework consist of 5 steps: the 1st step is to find opportunities and threats in the external environment as well as strengths and weakness of a firm in regarding to its internal and external situation; the 2ed step is to create alternative strategies by matching internal factors and external factors with the usage of SWOT matrix. The 3rd step is to determine corporate strategic direction by combine use of EFE, IFE and SWOT. The 4th step is to cluster alternative strategies in different levels. The last step is to select the best strategy for every cluster by using QSPM.

The significant of the study is to build a simplify framework for strategic development and suggest a different way of rating for EFE, and make the flow smoother. In addition, this study conducts a process of hierarchical clustering hereby can select strategies in all corporate, business and function levels.

The limitation of the study is that its only a design and has not been really carried out. The effectiveness of the framework ought to be justified by implementing it in a real firm.

Tools are always tools. It is human being instead of tools who makes decisions. Past experience, feeling, and intuition of top managers are essential to make good strategic decision.

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