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# The Role Played by Applied Decision Analysis in the Field of the Strategic Management Process

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**Abstract:** Corporate strategic decision-making is a complex process, facing many uncertain factors, and the information obtained through decision-making is not enough. With limited information, how to make the most accurate decision is a problem faced by decision makers. In order to enable enterprises to make better strategic decisions, this paper incorporates the main environmental factors when establishing the SWOT quantitative model, and uses some information analysis methods to convert the original environmental information into the strategic decision-making of the enterprise. By combining the AHP method with the expert system, the weights of each strategic factor are obtained, and finally the combined weight vector is calculated to obtain the optimal strategy of the enterprise. Therefore, it proves that applied decision analysis plays a vital role in the field of strategic management process.

**Keywords:** Strategic Management; Decision Analysis; SWOT Decision Analysis; Fuzzy Hierarchical Analysis; Strategic Decision Model.

## 1. Introduction

Entering the new century, with economic globalization, the strengthening of regional economic cooperation, the vigorous development of the financial industry, and the rapid development of communication technology and Internet technology, competition between enterprises is becoming more and more fierce .How to seize opportunities, meet challenges, and seek survival and development in the fierce market competition is an issue that every enterprise must seriously consider .Operating in such a strategic context, the problems faced by enterprises are also becoming more and more complex. In the fierce market competition, even those multinational companies that are well-known in developed countries, when facing fierce market competition, will inevitably make strategic mistakes and get into trouble. One of the important reasons is the lack of corporate strategies and insufficient attention to strategy management [3-4]. Therefore, in the market economy environment, it is necessary to fully realize that an enterprise is a dynamic and open system, and must pay attention to strategy and strategic management.

The corporate governance mechanism aims to prevent the speculative behavior of managers, so as to ensure the interests of the owners and managers of the enterprise. Therefore, J Nikolic proposed the conclusions of an experimental study in the Republic of Serbia. His research confirmed the correlation between business management and strategic decisions. Corporate social responsibility has become a major task of enterprises, but few managers can make social responsibility decisions based on competitive strategies. In this study, Mcwilliams A demonstrated to us how to make a trade-off between efficiency, cost, and pollution reduction, so that managers can make and support socially responsible decisions. In English-speaking countries, employees often do not have formal channels to decide on corporate strategies and management decisions. Casey C conducted a survey on labor rights and interests in Australia and New Zealand. The results showed that workers contacted corporate actors through various channels, thus establishing a set of channels for expression and participation. The silent behavior of the workers has played a supervisory role in corporate decision-making. However, the above studies are all shallow-level analysis of corporate strategic decision-making, and they lack efficient methods.

The novelty of this article is reflected in (1) By selecting successful enterprise cases, he analyzes the core competitiveness of the enterprise and the strategic management of the enterprise through a typical SWOT analysis model, so as to provide reference and guidance for more Chinese enterprises. (2) The enterprise builds a strategic management system based on its core competitiveness. It mainly expounds from the internal construction of the enterprise and the external construction of the enterprise, and then analyzes the steps to improve the core competitiveness of the enterprise.

## 2. Enterprise Strategic Decision-Making Model Construction

### 2.1. Corporate Strategic Management

The strategic management process of an enterprise refers to the process of formulating and implementing a strategy of an enterprise, which is mainly composed of the following four parts, as shown in Figure 1:

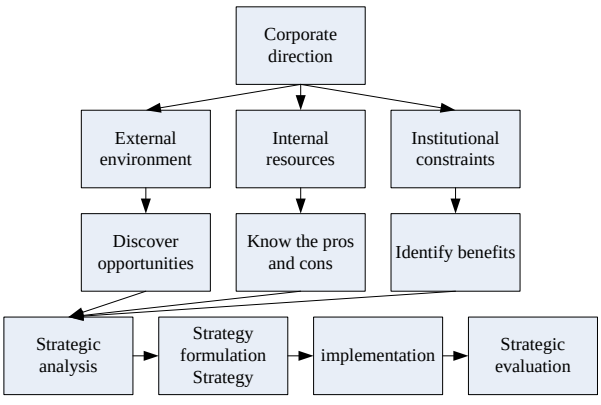


**Figure 1.** Strategic management process

(1) Strategic analysis

Strategic analysis is to better understand the competitive situation of an enterprise, and provide an important reference for the enterprise to formulate a reasonable development strategy based on the external environment and internal resource situation of the enterprise.

(2) Strategic choice

The stage of strategic selection is mainly to formulate strategies, evaluate strategies, and select strategies. Through the analysis of potential opportunities and risks, identify the strengths and weaknesses of the enterprise, determine the purpose and purpose of the enterprise's development, and conduct comparisons and analysis to determine the process suitable for the enterprise's strategy.

(3) Strategy implementation

The strategy implementation period refers to the effective implementation of the selected strategy of an enterprise in the process of strategy formulation, that is, the behavioral stage of strategic management. During this period, each department must formulate specific business strategies and strategies so that the overall strategy of the enterprise can be fully implemented.

(4) Strategic evaluation

The strategic evaluation stage is the last step of corporate strategic management. It is to evaluate and adjust the strategies adopted in a timely manner in the midst of changes in the external environment and internal resources, so that problems can be discovered and dealt with in a timely manner, so that the development strategy of the entire enterprise can be effectively implemented.

## 2.2. Corporate Strategic Decision-Making Methods

The strategic decision of a company is a very complex decision. Its complexity has led to a variety of ways to evaluate strategic planning. No method can comprehensively reflect the impact of the internal and external environment. Different understanding of the environment, different levels of abstraction, and different levels of abstraction will lead to differences in evaluation methods.

The common methods of corporate strategic decision-making can be summarized into two types: qualitative and quantitative:

(1) Qualitative

SWOT analysis is the most typical method in corporate strategic decision-making. SWOT is an effective means of strategic decision-making analysis. Through a four-dimensional framework, it helps decision makers find the optimal combination from the internal and external environments to formulate a strategic plan [10-11]. This paper adopts the method of SWOT strategic decision-making to conduct research on enterprises.

(2) Quantitative

1) Hierarchical analysis method (AHP)

AHP is to synthesize some qualitative and quantitative complex problems into a whole and conduct a comprehensive analysis of them. In particular, the analysis of the qualitative, quantitative, comprehensive measurement and other issues of the problem can be verified by scientific methods. The fundamental starting point is: in general, decision-making problems, it is difficult to make accurate judgments on multiple elements for a particular goal. The importance of the goal is expressed by the size of the quantity, and then the size is sorted to obtain the basis for strategic decision-making.

2) Fuzzy mathematics

In real life, there are many problems that are difficult to express with accurate data, and the evaluation factors are somewhat vague. At this time, using the method of fuzzy mathematics, a comprehensive assessment of such uncertainties was carried out.The fuzzy comprehensive evaluation method uses the basic principles of fuzzy mathematics to comprehensively evaluate and judge the comprehensive effects of various factors .

The steps are as follows:

①Establish a vague relationship

Assume that the factor value is $A=\{a_1,a_2,...,a_n\}$; the evaluation set is $B=\{b_1,b_2,...,b_n\}$.

② Establish a fuzzy matrix

Among them, the membership is represented by $C_{ij}$, the composition of the fuzzy relationship between A and B is represented by $(C_{ij})_{m\times n}$ , and the fuzzy matrix $C=(C_{ij})_{m\times n}$ is as follows:

$$C=\begin{pmatrix} c_{11} & c_{12} & \cdots & c_{1m} \\ c_{21} & c_{22} & \cdots & c_{2m} \\ \cdots & \cdots & \cdots & \cdots \\ c_{n1} & c_{n2} & \cdots & c_{nm} \end{pmatrix} \quad (1)$$

③Determine the set of index weight coefficients U

In general, the degree of influence of each factor on the evaluation results is not the same, so different evaluation indicators must be distinguished according to different weights.

$$U=\{u_1,u_2,...,u_n\},\sum_{i=1}^{n}u_i=1,u_i\geq 0,(i=1,2,...,n) \quad (2)$$

④ Vague judgment

Fuzzy transformation:

$$D=U\bullet R \quad (3)$$

Where: The fuzzy evaluation set is represented by D, and a certain fuzzy transformation is represented by ●.

In order to obtain Y, the method is to combine the score of each factor with the weight of each factor to obtain the membership of a scheme. When performing fuzzy comprehensive evaluation of Y, the final fuzzy comprehensive evaluation can be determined based on the principle of maximum affiliation.

$$D_T=\max(d_1,d_2,...,d_T,...,d_m) \quad (4)$$

The final comprehensive evaluation result is a T-level review. From this perspective, it is more scientific to use fuzzy mathematics to deal with it.

# 3. SWOT Decision Model

The setting is not very clear for the environment, so the improvement of the SWOT strategic analysis model can be carried out from the above four directions:

(1) Determination of important environmental factors. The complexity of the market environment has also led to changes in environmental impact factors, so under relatively stable conditions, the importance of each environmental factor can be determined and the weight determined based on its importance. However, because there are too many uncertain factors in the environment, its importance also changes over time. Therefore, when enterprises conduct decision-making

analysis, they must take into account changes in the environment.

(2) Determination of weight.On this basis, according to the proportion of environmental factors in the enterprise's competitive strategy, they are sorted by their importance, and then evaluated and analyzed by experts, and finally evaluated by expert system software, and a reasonable calculation formula is designed.

(3) Accurately evaluate environmental factors. The competitive environment of an enterprise is dynamic. Through SWOT strategic analysis, the analysis and decision-making of the competitive environment of an enterprise is a process of dynamic analysis, feedback and correction.

(4) Choose appropriate strategic decisions. Make decisions on the strategic goals of enterprise development in a scientific manner. AHP is a decision-based evaluation method, which has been developed by drawing on the strengths and advantages of several other methods. This method can effectively combine qualitative and quantitative, and can be used to solve complex problems that are difficult to comprehensively quantify in enterprise management.

# 4. Corporate Strategic Decision-Making

## 4.1. SWOT Decision Analysis

Applying the SWOT analysis method to the strategic decision-making of modern enterprises can provide clear and scientific analysis ideas for the senior management of enterprises, and provide sustainable development space for many enterprises. Taking Enterprise, A as an example, this article discusses how to use the SWOT decision analysis method to formulate the best development strategy for the enterprise.

Taking the Layer 2 optimal strategy selection model as an example, this article will explain how this example is calculated. Companies can choose from the following four strategies: product differentiation, high cost, accurate goals, and industrial diversification. Through the study of the optimal selection model, a two-layer strategy selection model can be constructed as shown in Figure 2.:

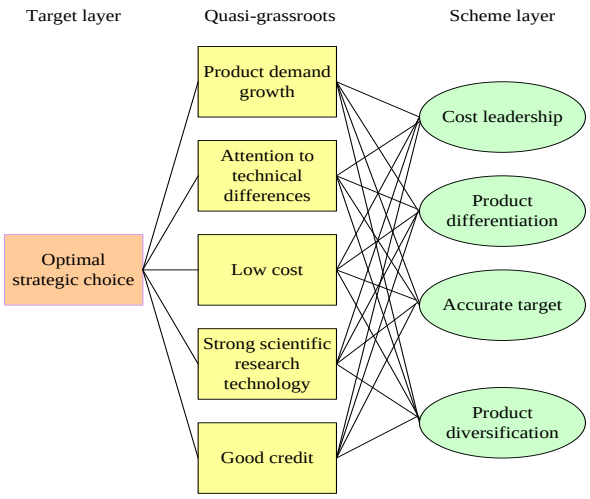


**Figure 2.** Optimal strategic choice model

The expert system realizes pairwise scoring of the above key factors, so as to obtain the element comparison matrix A of the rule layer and the target layer:

The maximum feature root of the calculation matrix is h = 6.45, and the corresponding feature vector $X^{(2)} = [0.32, 0.28, 0.21, 0.11]$.

Reconstruct a pair of comparison matrices for each element of the reference layer of the scheme layer, calculate the maximum feature root and the corresponding feature weight vector, and perform a one-time verification. The results are shown in Table 1.

**Table 1.** Eigenvectors and eigenvalues

| K | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| $X_k^2$ | 0.13 | 0.06 | 0.04 | 0.12 | 0.16 | 0.23 |
| | 0.14 | 0.43 | 0.45 | 0.36 | 0.27 | 0.22 |
| | 0.52 | 0.11 | 0.23 | 0.23 | 0.14 | 0.17 |
| | 0.43 | 0.23 | 0.52 | 0.56 | 0.38 | 0.47 |
| $\lambda$ | 4.0 | 4.1 | 4.2 | 4.0 | 4.2 | 4.3 |

Calculate the combined weight vector $X^{(3)} = [0.29, 0.31, 0.24, 0.12]$, and according to the calculation results, the optimal strategy of the enterprise is to implement the product differentiation strategy.

## 4.2. Strategic Decision-Making Plan

(1) In the transition period of industrial transformation, we must continue to increase investment in research and development, accelerate technological innovation, find differentiated strategies, and develop new products that meet market needs as quickly as possible through the research and development of new and old products.

(2) Taking advantage of the company's good performance in the past, help and urge various industry associations to strengthen guidance, change the current unreasonable market pattern as soon as possible, and actively participate in the formulation and implementation of business rules in line with the development of the industry.

(3) Give full play to the advantages of excellent corporate credit ratings, spare no effort, and still maintain their own advantages in the fierce price war.

(4) Through continuous market research, conduct another review of the original market to further clarify the company's market positioning in the new round of competition.

# 5. Conclusion

The strategic decision-making of an enterprise is related to the overall interests of the entire enterprise and is the key to the strategic management of an enterprise. The key to the development and success of an enterprise lies in the strategic decision-making of the enterprise. In order to enable enterprises to make correct strategic decisions and evaluate the advantages and disadvantages of various strategic choices, this paper uses the theory and practice of SWOT analysis, combined with relevant literature at home and abroad, to establish a SWOT-based decision-making model and apply it to the strategic decision-making of A company. However, in the design of system methods, it is more from the perspective of technology, and the research of the real enterprise decision support system, in addition to technology and methods, also includes factors such as the current situation and cost of the enterprise.

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