



Research and Application of Competitive Intelligence on Tmall E-commerce Platform Based on SWOT-AHP Model

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Abstract. [Purpose/Significance] Explore the decisions that Tmall e-commerce platforms should take in the entire e-commerce market, and provide reference for the research and analysis of e-commerce platforms. [Method/Process] Based on the SWOT-AHP analysis method, construct a SWOT-AHP matrix model to analyze the competitive intelligence of the Tmall e-commerce platform. [Result/Conclusion] The SWOT-AHP analysis method can effectively improve the effectiveness and reliability of decision analysis, providing targeted guidance strategies and theoretical support for relevant platforms. commerce platform; SWOT-AHP analysis method; com-

Keywords: Tmall e
petitive intelligence

1 Introduction

Compared with traditional enterprises, e-commerce enterprises have unique characteristics, and their progress and development depend on the continuous development of internet technology. The rapid update rate of internet technology determines that e-commerce enterprises will face a more cruel and severe competitive environment compared to traditional enterprises. At the same time, compared to traditional enterprises, the upgrading of e-commerce enterprises will be more frequent, with endless competitors and countless means of competition. Therefore, these factors force e-commerce enterprises to have a sharper vision and awareness. In other words, e-commerce enterprises will have a more urgent demand for competitive intelligence that is conducive to their development. If e-commerce enterprises want to survive and develop in the fierce competitive environment, the research and analysis of competitive intelligence will become particularly crucial.

2 Research Review

Throughout the research on competitive intelligence strategy abroad, competitive strategy mainly includes three basic strategies: cost leadership, differentiation, and

concentration strategy. Generally speaking, enterprises need to choose one of the above three as their main competitive strategy based on their own conditions and industry environment[1]. Enterprises should comprehensively analyze their own conditions and external industry environment, and choose one of them as their main competitive strategy [2].

Mr. Bao Changhuo, a well-known competitive intelligence professor in China, has been engaged in research on information science for decades and has compiled numerous classic books on information science. These studies have had a profound impact on the construction of the theoretical system in the field of competitive intelligence in China [3].

Nowadays, many scholars in the field of enterprise management in China also recognize the importance of competitive intelligence. Yang Jingjing analyzed the domestic online retail B2C industry in "Analysis of the Five Forces Competition Model in the B2C Industry" [4]; Zhang Qiankun also used Professor Porter's Five Forces Model analysis method to analyze the current competitive structure of the domestic internet supermarket industry where "No.1 Store" is located [5]; Zhong Xingde used Porter's Five Forces Model for his research in "Research on Competitive Strategy of E-commerce Enterprises"[6].

3 Introduction to SWOT-AHP Analysis Method and Construction of SWOT-AHP Model for Tmall E-commerce Platform

This article selects the Tmall e-commerce platform as the research object and conducts research on its SWOT-AHP model construction

3.1 Introduction to SWOT-AHP Analysis Method.

It is a method that combines qualitative and quantitative methods to rank the weights of SWOT factors, calculate the priority weights of measured elements, and obtain the best SWOT analysis results. The combination of SWOT analysis and AHP analysis can improve the reliability and accuracy of decision analysis [7].

3.2 SWOT-AHP model construction

This analysis method uses the SWOT analysis method to divide the objectives to be studied into four levels: advantages, disadvantages, opportunities, and threats. After collecting expert opinions and investigating relevant information, a structural model is established, and a judgment matrix is constructed for weight calculation and consistency testing, providing support for decision-making. The specific model is shown in Figure 1:

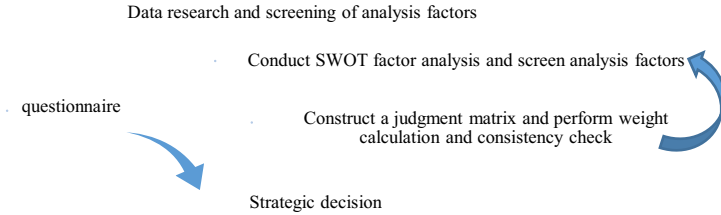


Fig. 1. SWOT-AHP Strategic Decision Model

The specific steps of the SWOT-AHP model analysis method are as follows:

(1) SWOT analysis research evaluates individual factors in SWOT and selects the factors that have the greatest impact on competition to establish a SWOT analysis model.

(2) Establish a hierarchical structure model and construct an AHP model, dividing the relevant factors that affect decision-making into target layer, criterion layer, and decision layer [8]. The target layer is the strategic decision-making suggestions for Tmall, the criterion layer is based on factors such as SWOT strengths, weaknesses, opportunities, and threats, and the solution layer is based on strategic decisions obtained through AHP analysis. The SO strategy is an offensive strategy, the WO strategy is a striving strategy, the WT strategy is a conservative strategy, and the ST strategy is a struggling strategy[9].

This article only selects the four analysis factors with the greatest impact in SWOT analysis, avoiding the problem of too many and too complex comparisons, and constructs a hierarchical structure model of Tmall. This study analyzes the internal environment, competitive environment, and competitor competitive intelligence of Tmall, as well as relevant literature, papers, and materials, as well as one's own subjective understanding and opinions. It comprehensively summarizes and organizes the internal advantages, internal disadvantages, external opportunities, and external threats of Tmall, and establishes a hierarchical structure model [10].

3.3 Calculation of weight values

This article focuses on three groups: consumers, merchants, and experts. A questionnaire survey was conducted, and a total of 201 responses were received. Some invalid questionnaires were removed from the middle, and SWOT analysis, related judgment matrices, and weight and consistency tests were conducted by organizing the data (as shown in Tables 1, 2 and 3).

Table 1. First level indicator judgment matrix A and weights

A	S	W	O	T	Wi
S	1	4.82	2.98	2.79	0.5105
W	0.23	1	0.43	0.7	0.1076
O	0.34	2.33	1	1.57	0.2228
T	0.36	1.43	0.64	1	0.1591

By calculation, it can be determined that the maximum eigenvalue of the first level indicator judgment matrix A is, $\lambda_{Max}=4.0699$, $CI=0.0233$, $CR=0.0123<0.1$. Therefore, this matrix passes consistency testing, and the weight values of each factor in the first level indicator are arranged in order as internal advantage weight>external opportunity weight>external threat weight>internal disadvantage weight, with weight values of 0.5105, 0.1076, 0.2228, and 0.1591, respectively; From this, it can be seen that Tmall has obvious development advantages and opportunities, while its internal disadvantages and external threats are relatively small.

Similarly, construct a secondary indicator judgment matrix and calculate the weights. Table 2 shows the judgment matrix S and weights of secondary indicators under internal advantages.

Table 2. Second level indicator judgment matrix S and weights under internal advantages

S	S1	S2	S3	S4	Wi
S1	1	1.82	2.49	2.77	0.4203
S2	0.55	1	2.31	2.7	0.2873
S3	0.4	0.43	1	1.56	0.1634
S4	0.36	0.47	0.64	1	0.1290

Similarly, the second level indicator judgment matrix W and weights under internal weaknesses, the second level indicator judgment matrix T and weights under external threats, and the second level indicator judgment matrix T and weights under external threats can be obtained

At the same time, the combined weights of the secondary indicator factors are calculated and sorted to understand the overall importance of all factors. The results are shown in Table 3.

Table 3. Analysis of Strategic Influencing Factors of Tmall E-commerce

target	Primary indicators	Weight value	Secondary indicators	Combination weight value	sort
<i>Strategic Analysis of Tmall Mall</i>	Internal advantages	0.5105	Consumer Market Big S1	0.2146	3
			Low price, multiple types S2	0.0309	11
			Multiple marketing channels S3	0.0364	10
			Industry leading position S4	0.0205	14
	Internal Disadvantage	0.1076	Logistics needs improvement W1	0.0706	6
			Many fake products W2	0.5779	1
			High traffic but poor quality W3 products	0.0417	9
			Brand constraints W4	0.0218	13
	External Opportunities	0.2228	Support of national policies O1	0.0876	4
			Development of National Economy O2	0.0439	8
			The increase in the number of netizens O3	0.0730	5
			Convenient online shopping and payment O4	0.0148	15
	External threat	0.1591	Intense Market Competition T1	0.2487	2
			Logistics delivery improvement T2	0.0134	16
			Laws and regulations need to be improved T3	0.0481	7
			Less profit for merchants T4	0.0275	12

4 Strategic Analysis of Tmall E-commerce Platform

In the case of implementing strategies in enterprises, there are four different strategies, namely growth strategy, striving strategy, conservative strategy, and pioneering strategy. It is necessary to calculate the strategic intensity coefficient of the enterprise to determine the situation of implementing strategies [11]. The introduction of optional strategies is as follows:

The SO strategy, also known as the growth strategy, is an ideal strategic model for developing internal advantages and utilizing external opportunities of enterprises.

WO strategy, also known as a competitive strategy, is a strategy that utilizes external opportunities to compensate for internal weaknesses, enabling enterprises to overcome weaknesses and gain advantages.

WT strategy, also known as conservative strategy, is a strategy aimed at reducing internal weaknesses.

ST strategy, also known as a strategy of resistance, is a strategy that fully utilizes its own advantages and actively resists. [12].

Based on the strategic analysis of Tmall Mall mentioned above, the overall strengths, weaknesses, opportunities, and threat intensity of Tmall Mall development can be obtained as follows:

Total advantage strength $S=0.5105$

Total disadvantage strength $W=0.1076$

Total opportunity intensity $O=0.2228$

Total threat intensity $T=0.1591$

The formula for calculating the strategic intensity coefficient of an enterprise is:

$$\rho = \frac{U}{U+V} \quad (1)$$

Among them, U is the strategic positive intensity, and its calculation formula is:

$$U = S \times O \quad (2)$$

V is the strategic negative intensity, and its calculation formula is:

$$V = W \times T \quad (3)$$

When $\rho > 0.5$, the enterprise's strategic intensity coefficient is high, indicating that the advantages and opportunities of the enterprise are more obvious and should adopt a pioneering trend;

When $\rho < 0.5$, the strength coefficient of the enterprise's strategy is small, indicating that the advantages and opportunities of the enterprise are not obvious, and a conservative approach should be adopted.

The positive intensity of Tmall's strategic strategy:

$$U = S \times O = 0.5105 \times 0.2228 = 0.1137$$

The negative intensity of Tmall's strategic strategy:

$$V = W \times T = 0.1076 \times 0.1591 = 0.0171$$

Tmall's strategic strength coefficient:

$$\rho = U/(U + V) = 0.1137 / (0.1137 + 0.0171) = 0.869 > 0.5$$

In summary, Tmall's strategy should adopt a pioneering SO strategy, that is, a growth oriented strategy.

5 Research summary

This article combines SWOT analysis method and AHP analysis method to construct a model of Tmall e-commerce platform. Through SWOT analysis method, relevant literature, papers, and materials are referenced and summarized, as well as one's own subjective understanding and opinions, the internal advantages, internal disadvantages, external opportunities, and external threats of Tmall Mall are sorted out; By using the AHP analysis method, calculate and rank the weights of each item, further improving the reliability and accuracy of decision analysis. Provide theoretical support for the final decision of Tmall to adopt SO strategy. This article takes the Tmall e-commerce platform as an example to analyze the competitive intelligence of e-commerce platforms by combining two methods. It also provides a new approach for research on other e-commerce platforms.

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