

# ***Competitive Strategy of Ocean Engineering Limited Company in the Environment of Big Data Algorithm***

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**Abstract:** The great development and social progress of modern China stemmed from persisting in promoting the continuous deepening of reform and opening up. The central enterprises in the construction industry, in line with the national situation and strategic needs, are also constantly deepening reforms and consolidating the foundation of national development. In corporate governance, production and operation, A modern company system has been gradually established in terms of property rights management and organizational structure. In order to solve the competitive strategy problem of Ocean Engineering Limited Company. in the environment of big data algorithm, this paper based on the overview of the competitive strategy structure of Ocean Engineering Limited Company, the overall trend diffusion technology function equation of big data algorithm and the swort analysis method, based on the large data algorithm. The product positioning and experimental data of the competition strategy of Ocean Engineering Limited Company. under the environment of data algorithm are designed and discussed, and the calculation flow chart of the competition strategy selection of Ocean Engineering Limited Company. is designed by using the big data algorithm. Finally, according to the designed The application of the algorithm in the identification of the advantages and disadvantages of the competitive strategy of Ocean Engineering Limited Company. The experimental data is analyzed. The experimental data shows that the big data algorithm can identify the advantages of the Ocean Engineering Limited Company's competitive strategy The accuracy rate is as high as 0.98, and the disadvantage of the strategic plan The recognition accuracy rate is as high as 0.95. Therefore, it verifies the superiority of Ocean Engineering Limited Company's competitive strategy in the environment of big data algorithm.

## **1. Introduction**

With the continuous upgrading of the company and enterprise development, the company's

competition model presents different characteristics at each stage, which brings about constant changes in the competition work, financing system and management system. The means and measures of company management also show different characteristics at each stage, The company's competitive strategy has also undergone different changes.

Nowadays, more and more scholars conduct research on the practical application of big data algorithms and other algorithms in the competitive strategies of various companies, and have achieved certain research results. Divya K S believes that Big Data is an excellent supply of information and knowledge from systems to other end users. However, processing such a large amount of knowledge requires automation, which has led to trends in data processing and machine learning techniques. Divya K S provides and develops big data algorithm platforms and tools to help professionals process their knowledge and learn automatically from big data algorithms. Most of these platforms come from big companies like Google or Microsoft, or from the incubators of the Apache Foundation. Divya K S explains Machine Learning Algorithms in Big Data Algorithmic Analysis, Machine Learning Challenges Us to Make Problem-Specific Decisions Based on Previous Lessons Without Knowing the " Right Path " , and enumerates some useful tools for analysis and building The most common tool for modeling big data [1]. Urbanski M mentioned that in the era of industrialization, a company's global strategy plays an important role in surviving in a highly competitive environment. Globalization strategy is the main weapon to compete with competitors and achieve higher performance. In this direction, employees global strategic awareness is crucial. In most companies, however, employee awareness levels are low, which negatively impacts global strategy. Urbanski M is designed to measure the level of employees' awareness of the company's global strategy. Urbanski M chose large Polish companies. The data comes from employees of large Polish companies [2]. Tjahjono H employs qualitative methods of descriptive research and uses SWOT analysis and AHP analysis. The total internal score (IFE) of the operating property business was 3.64, indicating the company's ability to deal with strengths and weaknesses, and the total external score (EFE) was 3.14, indicating that the external position of the property business was above average. So it can map from two matrices IE (inner outer). IE matrix (grow and build) at cell I position. Results SWOT draws conclusions for internal and external factors of RSR. (Strength-Opportunity) is a recommended alternative strategy to maximize strength points and foresee opportunities. Then, use the AHP to select the strategy development results using the SWOT analysis. Alternative strategies recommended to RSR are building a tiny house, infrastructure development, redesigning the house, promoting and co-event exhibitions, working with several contractors, and having a dynamic marketing plan. By applying these alternative strategies, RSR can optimize its competitiveness by identifying this strategic focus in implementation [3]. Although the existing researches on the competitive strategies of various offshore engineering companies are very rich, the research on the competitive strategies of offshore engineering companies based on the big data algorithm environment is still insufficient.

Therefore, in order to solve the problems existing in the research on the competitive strategy of Ocean Engineering Limited Company. under the existing big data algorithm environment, this paper uses the big data algorithm for design and application, and firstly introduces the steps of the overall trend diffusion technology equation of the big data algorithm. And the competitive strategy structure of Ocean Engineering Limited Company, secondly, it discusses the competitive strategic product positioning and experimental data of Ocean Engineering Limited Company under the big data algorithm environment, and finally designs the competition strategy scheme selection of Ocean Engineering Limited Company under the big data algorithm environment. process structure, and through the experimental data to analyze the recognition accuracy of the advantages and disadvantages of the ocean engineering Limited Company's competitive strategy under the big data algorithm environment, the final experiment shows that the proposed big data algorithm

environment of the ocean engineering company's recognition accuracy Effectiveness of Competitive Strategy.

## 2. Research on the Competitive Strategy of Ocean Engineering Limited Company under the Environment of Big Data Algorithm

### 2.1. The Competitive Strategic Structure of Offshore Engineering Limited Company.

The three levels of the company's competitive strategy are overall level strategy, business level strategy and functional level strategy, The details are shown in Figure 1:

(1) The overall level strategy should start from the enterprise as a whole and formulate the mission and tasks of the company according to the internal and external environment, as well as the business market, followed by the management of these markets and businesses, and the resource allocation plan and development direction among the strategic units of the company. In order to achieve the overall level of the company to organize [4].

(2) Business-level strategy, different businesses face different external environments and obtain different company resources, so the strategies of each unit are also different, and the strategies formulated by each unit are in line with the development of the unit, even if the business-level strategy [5].

(3) Functional-level strategy. Functional-level strategy is a specific strategy. In order to implement the overall-level strategy and business-level strategy, it is the consensus of each function [6].

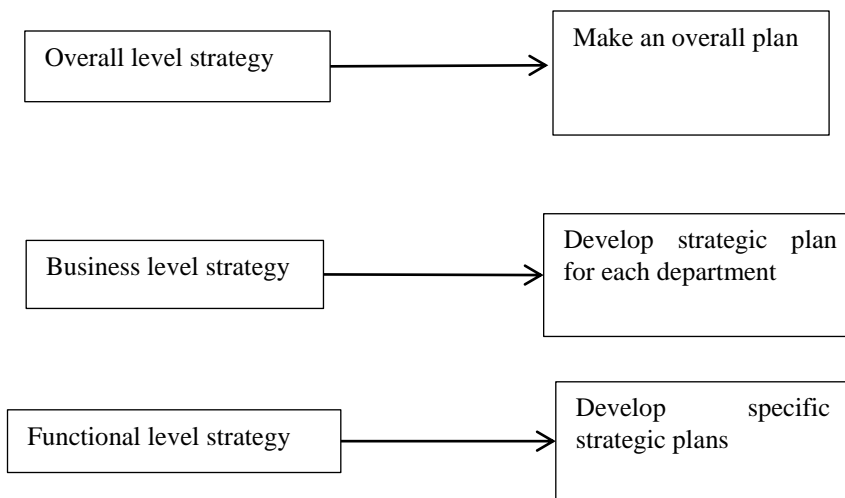


Figure 1. Competitive strategy structure of the company

### 2.2. Overall Trend Diffusion Technical Function of Big Data Algorithms

As a kind of big data algorithm technology, the overall trend diffusion (MTD) technology is derived from the information diffusion theory [7]. Description of the information diffusion criterion in this paper:

Let  $X = \{X_1, X_2, \dots, X_n\}$  be a given random strategic plan, and the identifiable value in  $X_v$  is denoted by  $r_v (v=1, 2, \dots, n)$ . The set of all possible values of random variable  $X$  is denoted as  $L$ ,

which is called the basic universe [8]. Assuming  $y = \mu(r - r_v)$ , there is a function  $r(t)$  so that  $r_v$  can be diffused to  $r(t)$  according to the random value of  $r$ . Based on this principle, the estimation of the density functions of the advantages and disadvantages of the overall competitive strategy scheme is called the estimation of the diffusion scheme, as shown in formula (1):

$$G(r) = \frac{1}{kh} \sum_{v=1}^k \varpi\left(\frac{r-r_1}{h}\right) \tag{1}$$

Among them,  $r(t)$  is the diffusion scheme function,  $h$  is the window width, and  $k$  is the number of identified strategic schemes[9]. The core content of big data information diffusion theory is the estimation of strategic plan diffusion function and advantages and disadvantages. Based on the idea of molecular diffusion, the normal strategic plan diffusion function is deduced, as shown in formula (2):

$$r(t) = \frac{1}{\partial\sqrt{2\pi}} \text{tap}\left(\frac{r^2}{2\partial^2}\right) \tag{2}$$

Among them,  $A$  is the diffusion coefficient of the advantages and disadvantages of the competitive strategy scheme [10].

### 2.3. SWOT Analysis Method

SWOT analysis, also known as situation analysis, analyzes the internal and external environment, development opportunities and risks faced by the Ocean Engineering Company. Based on the research of these contents, the development strategy of the Ocean Engineering Company is formulated comprehensively [11]. As shown in Table 1, SWOT includes strengths, weaknesses, opportunities and threats [12]. From these four aspects, the current situation of Ocean Engineering Co., Ltd. is respectively elaborated [13]. Advantage is to analyze the Marine engineering limited company has the resources advantage, technical superiority, customer superiority, disadvantage is combined with practical work, the lack of ocean engineering limited company, based on the multiple link, the integration of Marine engineering limited company in the raw material supply, transportation channel, the respect such as service quality defects, defect analysis. Opportunities represent the development opportunities faced by Ocean Engineering Company Limited [14].

Table 1. SWORT matrix

Internal factors	AdvantageA	DisadvantageD
External factors		
Opportunity U	AU	DU
Threat R	AR	DR

## 3. Investigation and Research on the Competitive Strategy of Offshore Engineering Limited Company in the Environment of Big Data Algorithms

### 3.1. The Competitive Strategic Product Positioning of Ocean Engineering Limited Company under the Big Data Algorithm Environment

Marine engineering co., LTD has completed each type of a total of 16 kinds of Marine products research and development and construction, which has a mature research and development and construction experience, good at the same time, the future development prospect of Marine

engineering equipment has a deep sea engineering survey ship, wind power installation platform, semi-submersible vessel, etc., relative to competitors, in the field of this a few product has a certain advantage [15]. In the future, the company should position its products mainly in these types of equipment, supplemented by other types of Marine engineering equipment, constantly polish and upgrade, and maintain and expand its competitive advantage in these equipment [16].

### 3.2. Competitive Strategy Experimental Data of Ocean Engineering Limited Company Under The Environment of Big Data Algorithm

Experimental data preprocessing, this paper selects the privacy protected data of A Ocean Engineering Co., LTD., extracts the data by random sampling, and finally selects more than 2000 pieces of data from 2019-2022 in the database [17]. This data set contains 20 types of competitive strategies, 80% of which are randomly selected as the training set for establishing the prediction model of corporate competitive strategies, and the remaining 20% of which are used in the test set to verify the accuracy of big data algorithms [18].

## 4. Research on The Competitive Strategy Design of Ocean Engineering Limited Company Under The Environment of Big Data Algorithm

### 4.1. The Competitive Strategy Design of Ocean Engineering Limited Company under the Environment of Big Data Algorithm

The company has set up two competitive strategy alternatives. Here, it is necessary to use big data algorithms to conduct quantitative competitive strategic plan matrix to analyze and sort out these plans, and at the same time analyze and evaluate their calculation results. The first is environmental competitiveness. Advantages and strategic value, followed by the disadvantages of strategic competitive solutions, so that marine engineering companies can find the most suitable strategy from the three types of competitive strategies. When using this matrix to calculate and sort out the alternatives, The specific process is shown in Figure 2:

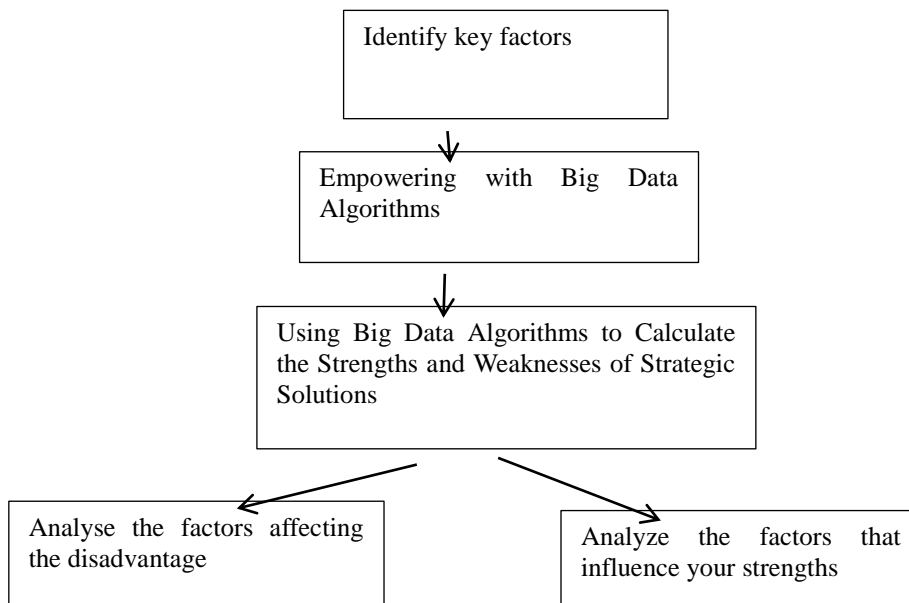


Figure 2. Competitive strategy selection process

(1) Identify key factors, generally divided into four categories, two categories are external factors, namely threat opportunities; two categories are internal factors, namely advantages and disadvantages.

(2) Empower strengths and weaknesses, and after clarifying these factors, clarify their weights.

(3) Fill in the alternative competitive strategies.

(4) Clarify the disadvantage of the competitive strategy, that is, the FA score. Analyzing the various influencing factors of the disadvantage of the strategic plan, and forming the exclusion measures of the strategic plan, the scoring rule is: 1-10 points indicate no disadvantage, few disadvantages, general disadvantages, and extreme disadvantages in turn.

(5) Clarify the advantage of the competitive strategy, that is, the TFA score, and multiply the FA score and the weight to get its value.

The sum of strategic advantages is calculated, and the TFA score of each factor is summed to obtain its value.

#### 4.2. Design and Application of Competitive Strategy of Ocean Engineering Limited Company under the Environment of Big Data Algorithm

In order to verify the effectiveness of the competitive strategy plan of Ocean Engineering Limited Company under the big data algorithm environment, this paper conducts experimental analysis on the identification results of the competitive strategic advantages and disadvantages through the big data algorithm. The experimental results are shown in Table 2 and Figure 3:

Table 2. Competitive strategy identification results

Recognition accuracy	Advantage	Disadvantage	Total score
Plan1	0.84	0.90	0.86
Plan2	0.82	0.93	0.84
Plan3	0.98	0.95	0.85

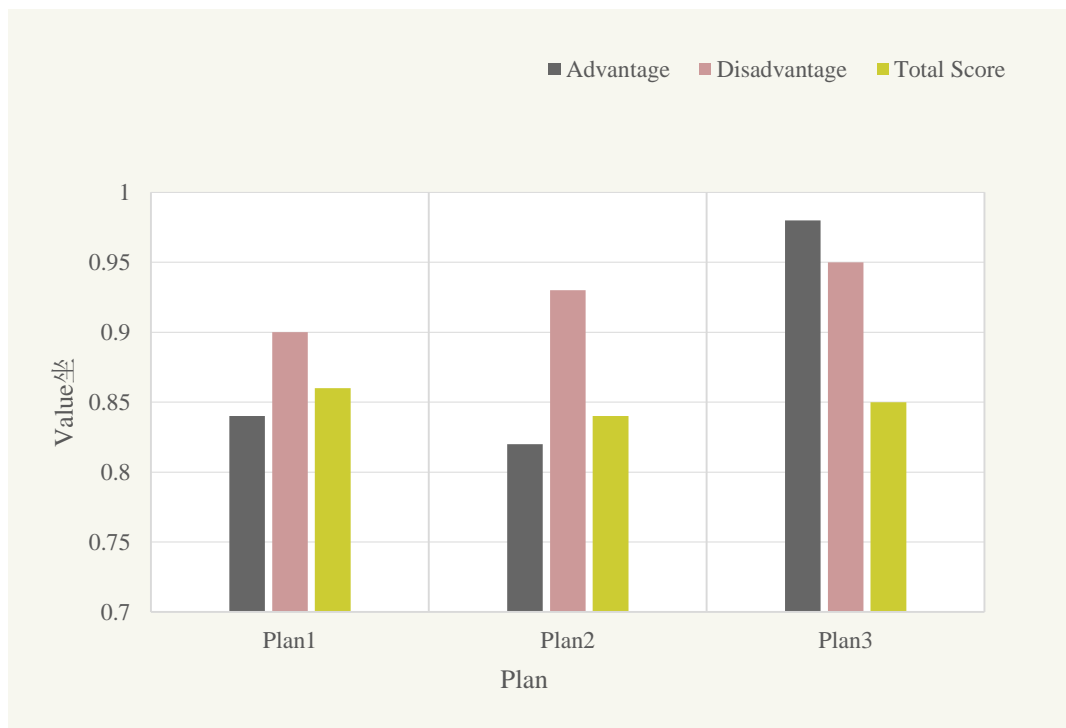


Figure 3. Competitive strategy identification results

As can be seen from Table 2 and Figure 3 above, the prediction accuracy of the advantage of the competitive strategy is 0.84-0.98, the prediction accuracy of the disadvantage of the competitive strategy is 0.90-0.95, and the overall prediction accuracy is 0.80, that is, the prediction is competition. Among the 10 plans of the strategy, 8 plans are accurate competitive strategies. The proportion of the two is the accuracy of the big data algorithm. In general, the overall accuracy is 0.85, which means that the accuracy of the big data algorithm model in this paper can reach 80% in the identification and prediction of the engineering company's competitive strategy, which shows that the accuracy of the big data algorithm in this paper is quite high, and it can be used for reference.

## 5. Conclusion

Therefore, in order to enrich the research on the competitive strategy of Ocean Engineering Limited Company under the environment of big data algorithm, this paper firstly briefly introduces the competitive strategy structure of Ocean Engineering Limited Company based on the overall trend diffusion technology of big data algorithm and the SWORT analysis method, and then analyzes the big data algorithm. Based on the technical analysis and discussion of the competitive strategy of Ocean Engineering Limited Company under the data algorithm environment, the product positioning and experimental data of the Ocean Engineering Limited Company's competitive strategy based on the big data algorithm environment are investigated and designed. Secondly, design and analyze the model architecture selected by the competitive strategic plan of Ocean Engineering Limited Company under the big data algorithm environment. The experimental results verify the feasibility of the competitive strategy of Ocean Engineering Limited Company based on the big data algorithm environment.

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## Data Availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

## Conflict of Interest

The author states that this article has no conflict of interest.

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