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## ARTICLE

# A Retrospective Study of Product Quality

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ABSTRACT

Quality is a product to the customer after the test and use of the performance of the product in the index.If there is no problem, it is considered to be a product with good performance; if there is a problem, it becomes a product with poor performance. When a certain number of products have no quality problem after the experiment and operation, it is a good product. However, the evaluation of the use of the assembly after a certain period of time after the final customer should also be discussed. Only in this way can the product quality be improved fundamentally. A/S is a significant process when the retrospective production is done for its quality to be investigated. Retrospection becomes a new way to study and innovate manufacturer quality currently in busyness. In modern society the retrospect as A/S is more and more prevail at shopping mall in big city for customer convenient application. In terms of their rapid and good mending the excellent brand will be established for product quality year-by-year.

## 1. Introduction

In modern factories when a product is in use, problems can be traced back to the production equipment. This requires us to know the state of the product when it is used, and to carry out simulation and experiment to get the condition of the equipment at the problem point. This is an inevitable outcome of the use of big data management and cloud services in modern factories. In this way, the requirements for the product are higher and the understanding of the equipment is higher. This not only improves the customer's quality requirements, but also can be traced back to the use of the product equipment makes the product quality greatly improved, to obtain a win-win goal. [1] that is, the price keeps the trend of no decline and no rise, [2~4] the customer also increases the confidence of the product due to the factory's better understanding.In the

long run, this will keep the company thriving. As a result of good performance so in the price unchanged under the condition of a steady increase in orders. So that the brand can be established, to achieve the effect of poplar. So high quality products are the foundation of modern enterprise brand. Only continuously updated manufacturing can set up a bigger brand sail, maintain evergreen trees. And brand and stimulate quality, because bag companies are not sustainable. Only step by step to improve the quality of the enterprise is the fundamental, the source of enterprise life. A/S with establishing brand plays more and more role at department store for customer convenience. The retrospection will be done by enterprise for them to innovate product quality year by year. Recently AI (Artificial Intelligent) productions are gradually prevail in many respects for instance household appliance industry and cell phone etc. That recycle is born to handle the old

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appliance becomes a new scenery. This belongs to A/S as well instead of mending too many times and becoming old.

## 2. Discussion

Quality is the traceability of the products in the production equipment in the factory.If any quality problems can be traced back to the equipment, this ensures that the production process is serious and responsible.

Make a comparison between the market and the factory to see if there is any difference in quality. This will allow you to see what further improvements need to be considered as a result of the use of the product. Therefore, factory production should take a long-term view to serve the application customers. If there is a serious problem with the product in the market, it will be traced back to the factory. Customers may be compromised by ill-considered or simply unclear circumstances.

Company training can be done by in-house engineers, which can save money. And they are more familiar with the product and equipment process, they are better trained. Some of the high-level training is still carried out by the specialized talents in the research institutes and universities. There will be professional improvement of the technical level of personnel and equipment, and even improvement of equipment to a certain extent. Therefore, it is mainly the training within the company, and the important thing is the training of the external personnel of the company for the internal professionals, including the training of external personnel and external training. In this way, it not only ensures that the product line in the club will not be interrupted and the general education of professional knowledge, but also ensures the professional training of engineers, improves their professionalism and purpose, and makes continuous efforts to constantly update the technical level of the product line in order to improve the quality and efficiency of the product line. There are certain restrictions on the time and level of engineers in the society, because most of them are young people who have just graduated, which limits their strength. Therefore, it is of certain significance to hire high-level professionals to train technicians in the institute. According to the actual situation of the company's product line, the corresponding technical content can be developed for communication, so as to find some breakthroughs or inspirations on technical problems. Then according to the content of the lecture to sort out the relevant information to gradually improve the company's technology and engineering level. Social training may also continue to improve the standard of workers, which needs to be developed by the training department. It can be used to train teachers or select economic and engineering technicians to improve the professional level of the company. The training of workers and engineers should be carried out separately, by different people to avoid duplication and level differences. It is mainly the training of engineers, because they are the hope and main force of the company, so it is necessary to carefully design subjects and content by a certain level of senior engineers as guidance, in order to make the company's technical ability to continue to improve or not to face the situation of fault. In the standardized management of nuclear power quality system, the test operation is conducted by the personnel with quality technical qualification level 1 and level 2, but it cannot be conducted without the authorization of the personnel of level 1. Therefore, the training teachers of the company should also divide the personnel with qualification certificate or degree certificate into 1, 2 levels for training, and give priority to the first level to teach, and then the second level to ensure the efficiency of the staff. Level 1 staff are older and have more experience and professional knowledge, while level 2 staff are young and enthusiastic. Although their professional ability is limited, they have strong innovation ability. Some universities and research institutes have professionals with rich theoretical knowledge, whose knowledge is indispensable. Some advanced theories are put forward or even quoted by them. If applied to the company's product chain, what advantages will be formed need our engineers to study well. The practice under the guidance of the theory or the theory under the practice is good, as the name implies is of course the former, so enterprises need to actively seek the opinions of professors and researchers for problems. If product line form the theoretical system of things can form controllable, can be scientifically, predictable control scale. This remains to be observed and evaluated further. So that we can predict how many machine, how many products and how many people work for a few hours to reach the best point to maximize the company benefits, no less maximize the company's interests. And daily assessment to calculate the appropriate amount and make a good plan in advance and then timely modification to reach it, deficiencies to improve gradually. The gap between the actual benefits and the theory is studied and the error is minimized. It can also accurately value the stock market as appropriate financing for enterprises. When enterprise benefit not quickly return to the enterprise will be facing low-income status, so the enterprise need to continue to invest has earn fees pay workers salary and liabilities, this needs it as much as possible the multiple investments like stocks, logistics and real estate investment to return to it. The enterprise needs to set up an investment department to determine which aspects can be invested and how much

to invest, to maximize the short-term and long-term benefits, so it needs to hire investment personnel and experts to take the positions of the enterprise investment department. They invest and manage the right amount of money to maximise returns and, with luck, act on their own. Engineers can be logistics personnel, can know the speed of the equipment will cause how much economic benefits, this is the force of goods, we spare no effort to achieve maximum returns. The quantity and speed of logistics is the lifeblood of money, need to strengthen management, even transport companies. The transportation company employs a driver as the responsible person to deliver the goods to the other party's warehouse within the specified time. Sometimes due to a variety of problems caused by delay or not early to cause problems need to attract the attention of the transport company leadership. Because traffic accident brings loss to be able to assume a part of responsibility by insurance company, the rest assumes by oneself and company, need to avoid as far as possible. Late is late human life, need to understand. Of course, the factory is less safety problems, need to conduct staff safety training, so that workers and quality personnel to minimize the safety responsibility, such as some irresponsible behavior caused by the loss of the company needs to work hard to solve.

Without the quality of the use it is difficult to ensure the full use of the product. Certain defective products will cause a bad reputation of the company. You lose faith in the product. The company also suffers losses, such as reduced orders and stoppage. Poor performance of the product to be strictly controlled, so we have to trace the status of the product after sale. Engineering designers need to make the product has enough performance, in order to guarantee the early quality problems A/S(after sales service). Now there are many repair shops to the same city and district to ensure the use of consumer household appliances, if the user's goods appear quality problems by their repair, in order to ensure the normal use of consumer goods. Now the quality of branded goods can be improved and maintained by the same company, ensuring that goods can be repaired quickly and accurately. Brand effect is realized, the user gets quick action and feels satisfied. If the goods have quality problems and there is no maintenance point in the same city, they can also be mailed to the nearest big city for repair to facilitate maintenance. So A/S is the key to the business department of the manufacturer, the number of customer complaints is the purpose, once found that the immediate handling of complaints is the key to maintain the reputation of the company. Quality becomes the key, especially after sale quality. The factory of the company should be seen from a distance. Only when the product is designed and manufactured from the final consumption can the quality be guaranteed and the brand can be promoted, and the reputation of more people can be gained. Finally, the brand image can be established and the company can strive for profit maximization. Even if the company meets difficulty in financial respect the brand and A/S will wield their roles due to the excellent A/S sew. Because the quality is increased through after sales service the company will survive in critical period even if financial crises.

## 3. Conclusions

(1) The quality can be traced back to the production equipment in the company. The factory has to monitor the production equipment and print the product log No. In this way, according to log No., the problem points of the equipment are known and improved.

(2) Tracking final customers of finished products will improve the performance of products and equipment. Can spot check a certain number of structural parts, and study to find improvement points can increase the personnel's understanding of equipment requirements.

(3) Quality is closely related to use. Without the quality of the use is difficult to guarantee the overall performance of the product. The quality is subject to the brand brand sent to the brand can stimulate the improvement of quality. After sales service(A/S) is a sublimation of the production. In crises company will conquer the difficulty through its A/S done in cities of all over the world. For the sake of the profit maximization it is significant almost that the quality is done excellently in manufacturer that is necessary. The company proceeds its benefit by building its brand at the same time.

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# ARTICLE

# Clustering Analysis of User Loyalty Based on K-means

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| ARTICLE INFO | ABSTRACT |
|---|---|
| | In recent years, the rise of machine learning has made it possible to further explore large data in various fields. In order to explore the attributes of loyalty of public transport travelers and divide these people into different clustering clusters, this paper uses K-means clustering algorithm (K-means) to cluster the holding time, recharge amount and swiping frequency of bus travelers. Then we use Kernel Density Estimation Algorithms (KDE) to analyze the density distribution of the data of holding time, recharge amount and swipe frequency, and display the results of the two algorithms in the way of data visualization. Finally, according to the results of data visualization, the loyalty of users is classified, which provides theoretical and data support for public transport companies to determine the development potential of users. |

## 1. Introduction

With the continuous improvement of domestic economic level, the process of China's urbanization is speeding up, the city scale is expanding, and the personal vehicle ownership and road traffic flow are also increasing rapidly, which leads to the increasingly prominent contradiction between traffic supply and traffic demand. In order to solve this problem, public transport has been greatly developed and become one of the important bases to maintain the operation of the city.

With the development of public transport, public transport companies such as public transport companies, subway companies and all in one card companies have a large number of user transaction data. In order to improve the competitiveness and viability of the company, expand the revenue channels of the company, tap the potential value of data, and realize the dimension expansion of data has

become an urgent means to be considered.

In terms of potential value mining of public transport data, there are many researches. Tao Zhou et al [1] put forward the data analysis and processing system framework of public transportation IC card based on GIS, and established the system analysis process to realize the calculation of user travel OD; Xiangyun Li et al. [2] used Gaussian process regression to realize the prediction of bus arrival time; Li Goldman Sachs et al. [3] used the neural network model of LSTM to learn the long-term sequence data of boarding and alighting passenger flow at multiple stations, and realized the short-term prediction of public transport passenger flow;In addition, there are a lot of researches such as station matching [4], bus route optimization [5], travel feature analysis [6], and bus operation optimization [7], which greatly expand the dimension of public transport data and tap the potential value of public transport data. However, there is no research on the loyalty attribute of public transport users.

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Public transport user loyalty refers to the degree of public transport users' support and use of public transport. Research on customer loyalty can understand the current situation of customers in enterprises as a whole and evaluate the level of customer loyalty. It can not only make enterprises clearly understand the current customer quality, but also clarify the position and weight of enterprises in the market [8].For public transport, users who use public transport travel, namely customers, study the loyalty attribute of users, and classify the loyalty level of users, which can make the public transport related enterprises clear the value and potential of various users.User loyalty data can serve for product design, marketing activities and other businesses, provide theoretical and data support for public transport enterprises to determine the development potential and development value of users, and provide reference for public transport enterprises to select target customers in industry expansion and business application.

In order to analyze the loyalty attribute of public transport users, this paper uses traffic IC data (including public transport data and subway data) and K-means algorithm to cluster the user's card duration, card swiping frequency and recharge amount, and then uses kernel density estimation algorithm to analyze the clustering results and realize data visualization. Finally, the traffic IC card users are divided into four loyalty levels, which are public The joint transportation enterprises provide data support for the determination of users' potential and value.

## 2. K-means Clustering Algorithm and Kernel Density Estimation

In this paper, K-means algorithm is used to cluster user loyalty, and then kernel density estimation algorithm is used to further analyze the clustering results.

K-means clustering algorithm is a classical distance based clustering algorithm. The so-called clustering, according to the principle of similarity, divides the data objects with higher similarity into the same cluster, and divides the data objects with higher dissimilarity into different clusters, so as to achieve the division of data categories. K-means algorithm first randomly selects k points (called clustering centers) in the data set, and then associates each data point with the nearest center point according to the distance from k center points. All points associated with the same center point are classified into one group, and then calculates the mean value of each group of data, taking the mean value as a new clustering center and following it repeatedly Finally, when the cluster center does not change, the cluster is completed.

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based clustering algorithm. The so-called clustering, according to the principle of similarity, divides the data objects with higher similarity into the same cluster, and divides the data objects with higher dissimilarity into different clusters, so as to achieve the division of data categories. K-means algorithm first randomly selects k points (called clustering centers) in the data set, and then associates each data point with the nearest center point according to the distance from k center points. All points associated with the same center point are classified into one group, and then calculates the mean value of each group of data, taking the mean value as a new clustering center and following it repeatedly Finally, when the cluster center does not change, the cluster is completed.

Kernel density estimation is used to estimate the unknown density function in probability theory, which belongs to one of the nonparametric test methods.Generally, there is a big gap between the basic assumption of the parameter model and the actual physical model. These methods do not always achieve satisfactory results.The kernel density estimation makes full use of the information of the data itself to avoid the prior knowledge brought in by human subjective, so it can approximate the sample data to the greatest extent (relative to the parameter estimation). Because kernel density estimation method does not use the prior knowledge of data distribution and does not attach any assumptions to data distribution, it is a method to study the characteristics of data distribution from the data sample itself. Therefore, it is highly valued in the field of statistics theory and application.

## 3. Data Preprocessing

This paper analyzes the data of Guangzhou IC card in May 2019 (including the data of public transportation and subway), the data of related users' card issuing and the data of users' recharge in that month, and obtains the data of users' card duration, frequency of card swiping in that month and recharge amount in that month.

Due to the different types of people represented by each card type (ordinary card, senior card, student card, etc.) and the preferential policies for riding, it needs to be analyzed separately. This paper takes the data of ordinary card as an example.

Before K-means clustering, we need to preprocess the data.There may be incomplete (missing values), inconsistent and abnormal data in the massive original data, which will seriously affect the clustering effect of K-means algorithm, and even cause the clustering result is unreasonable, so data cleaning is particularly important. The transaction data obtained from various channels can not be directly used for data analysis, and the missing and in-

complete data can be processed.Because there are enough samples in the data set, the number of data in the above cases is generally relatively small, which can be discarded.Statistics and observation of the data are carried out.

The average value, maximum value and minimum value of the data are shown in Table 1:

**Table 1.** data description

|  | Card duration (month) | recharge amount in the month (yuan) | swipe frequency in the month (Times) |
|---|---|---|---|
| Average | 47.93 | 49.18 | 23.70 |
| Max | 204 | 9750 | 1040 |
| Min | 0 | 0 | 1 |

From the above table, it can be found that the maximum and average values of the recharge amount and the frequency of card swiping are extremely unbalanced. Through the data statistics, it is found that the capacity of sample data set is more than 8 million pieces, and the data with more than 130 times of swiping card accounts for 0.5%, only 5 pieces of data with more than 500 times; 0.2% of the data with a recharge amount of more than 300 yuan, and only 1254 pieces of data with a recharge amount of more than 500 yuan, only 1 / 10000 of the data set. These oversized data only account for a small part and belong to outliers. Although the value of outliers is beyond the normal range, some of the data are real, so it can not be simply discarded. At the same time, it can be seen from the above table that the numerical distribution range of the selected features in this analysis is quite different. In order to reduce the incongruity of numerical values between features, it is necessary to normalize or standardize the data first.

The Z-score standardized formula model is as follows:

$$x^* = \frac{x - x_{avg}}{\sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - x)^2}}$$

Where x is a piece of data of the sample, which represents the average value of the sample, n is the sample capacity, which represents the piece of data of the sample, which is the result after Z-score standardization.

When the difference between X and the average value of the sample is larger, the standard deviation represented by the denominator in the formula is larger, which greatly reduces the impact of extreme maximum value on clustering results.

# 4. User Loyalty Clustering Based on k-means

## 4.1 Selection of Cluster Number

Because K-means clustering algorithm can not determine the number of clustering categories K, so we need to choose the appropriate K value.When the number of clusters can not be defined according to the actual situation of clustering objects, the commonly used methods are: empirical method, elbow method, contour coefficient method and interval statistics method.For user loyalty clustering, the number of clustering categories can be self-defined, that is, empirical method. In this paper, the user loyalty clustering categories are set to four categories, which correspond to high loyalty group, lower loyalty group, general loyalty group and low loyalty group respectively.

## 4.2 User Loyalty Clustering

In this paper, K-means algorithm is used to cluster the three characteristics of traffic IC card users, i.e. card duration, recharge amount and card frequency.After clustering, the output results will divide the users into four categories of loyalty groups. Although k-means algorithm divides the groups, the corresponding loyalty levels of the four groups cannot be directly confirmed. It is necessary to visually analyze the three characteristics of the analysis group, i.e. cardholder duration, recharge amount and swiping frequency, in order to classify the loyalty levels of each category.

## 4.3 Visual Analysis of Clustering Results

Because the clustering results are tens of thousands of data, it can't be directly displayed by simple drawing such as scatter diagram, so further analysis of the characteristics of each clustering result is needed.In this paper, KDE (kernel density estimation) algorithm is used to analyze the clustering results visually. KDE algorithm makes full use of the information of data itself to avoid the prior knowledge brought in by human subjective, so as to achieve the maximum approximation of sample data. KDE algorithm can objectively and directly show the probability distribution of data in the numerical range, which is suitable for this paper to estimate the distribution of three characteristics of all kinds of people.

The formula model of nuclear density estimation is as follows:

$$f_h(x) = \frac{1}{n}\sum_{i=1}^{n}K_h(x - x_i) = \frac{1}{h}\sum_{i=1}^{n}K_h\left(\frac{x - x_i}{h}\right)$$

H is the bandwidth of kernel density estimation, which needs to be set according to the actual situation. N is the sample size, which is the kernel function of kernel density estimation. It is similar to the kernel function in support vector machine (SVM), mean IFT and other algorithms.

The common kernel functions in kernel density estimation include uniform function, triangle function, Biweight function, triweight function, epanechnikovnormal function, etc.In this paper, the kernel function used for kernel density estimation of three features is Gaussian function, and its formula model is as follows:

$$K_h(x) = \frac{1}{\sqrt{2\pi}} \exp(-\frac{1}{2}x^2)$$

In the kernel density estimation algorithm model, different bandwidth will lead to great difference in the final fitting results. If h is too small, there will be too few points involved in fitting in the field, and if h is too large, waveform fusion may occur. The selection of H depends on the specific situation. If the fitted probability distribution curve is considered to be too flat, the h parameter can be reduced appropriately. If the fitted probability distribution curve is considered to be too steep, the bandwidth h can be increased appropriately. In this paper, the bandwidth selected for the core density estimation of the card duration is 1.0, the bandwidth selected for the recharge amount is 5.0, and the bandwidth selected for the card frequency is 1.0.

The curve chart of card duration, recharge amount and card frequency of various other groups is as follows:
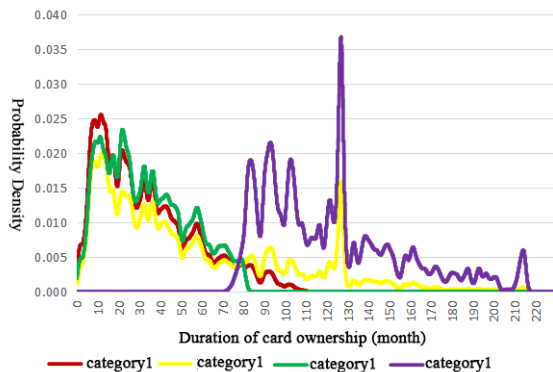


**Figure 1.** KDE curve of card ownership time
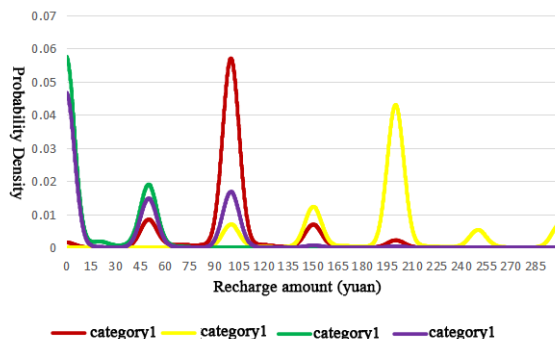


**Figure 2.** KDE curve of recharge amount
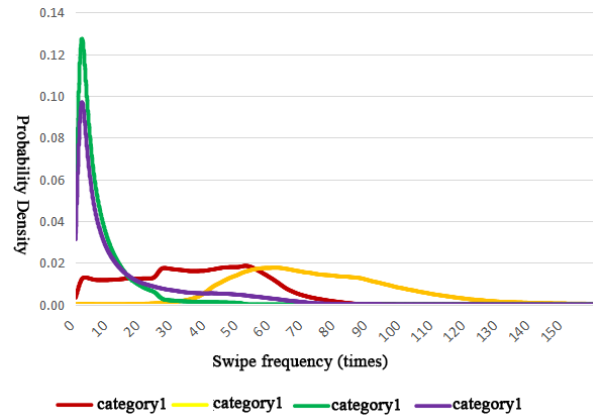


**Figure 3.** KDE curve of card swiping frequency

From the above three figures, it can be seen that the length of the cardholder of category 1 is relatively low, generally less than 100 months, and the recharge amount is relatively moderate, mainly concentrated in 100 yuan, and the frequency of card swiping is relatively moderate, generally less than 80 times, so the group of category 1 belongs to the higher loyalty group;The duration of the card of category 2 group is moderate, generally less than 170 months, which is mainly concentrated in the area with low value. The recharge amount is relatively high, mainly 200 yuan, and the frequency of card swiping is relatively high, mainly between 40 and 125 times. Therefore, category 2 group belongs to the group with high loyalty;Category 3 people have relatively low card duration, generally less than 80 months, relatively low recharge amount, generally no more than 60 yuan, relatively low card frequency, generally less than 30 times, so Category 3 people belong to low loyalty group;The length of cardholder in Category 4 is generally within 70-220 months, mainly between 70-130 months, relatively high, and the amount of recharge is relatively low, generally lower than 120 yuan, mainly concentrated at 0 yuan, that is, this group generally does not recharge or recharge less, and the frequency of card swiping is relatively low, generally lower than 70 times, and mainly concentrated between 0-20 times and more inclined to 0 times, so category 4 group Belong to the general loyalty group.

## 5. Increase Loyalty

In the field of public transport, improving user loyalty needs to consider improving user experience. For example, if the cost allows, the distance between stations can be shortened by adding stations to make it more convenient for users to ride; more shifts can be added to reduce the waiting time of users and reduce the congestion in the car; WiFi or shared tissue can be provided in the car to

facilitate users, etc. There are many ways to improve the loyalty of users. Public transport enterprises can improve the loyalty of users with the permission of cost, and have more and better customer resources for their industry expansion and business application.

## 6. Summary

In the era of fierce competition, in order to improve the company's competitiveness and viability, expand the company's revenue channels, tap the potential value of data, and realize the dimension expansion of data has become an urgent means to be considered. In this paper, traffic IC data (including bus data and subway data) is used to correlate user card issuing data and user recharge data of the current month, so as to obtain the user's card duration, card swiping frequency and recharge amount data of the current month. After data cleaning and Z-score standardization, according to different card types, K-means algorithm is used to cluster the three user characteristics of user's card duration, card swiping frequency and recharge amount, and then kernel density estimation algorithm is used to analyze the clustering results, and the analysis results of kernel density estimation are displayed by data visualization. After the core density map is Through observation, traffic IC card users are finally divided into four loyalty levels, which provide data support for public transport enterprises to determine the potential and value of users, and also provide reference for public transport enterprises to select target customers in industry development and business application.

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**REVIEW**

# A New Mode of Enterprise Management -Value Enterprise Management

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| ARTICLE INFO | ABSTRACT |
|---|---|

In the development of modern enterprises, the management mode is the main factor that determines the height of its development, so it is highly valued.The traditional management mode has many disadvantages, which can not comply with the development trend of the current market economy, which leads to the slow improvement of enterprise management level, which is not conducive to the operation and development of enterprises. The proposal of the concept of value-oriented enterprise management has become a new mode of enterprise management, which is helpful to speed up the reform process of enterprises and enhance their development vitality. Therefore, we should clarify the key points of the construction of the model and gradually improve the level of management. This paper analyzes the concept of value enterprise management, puts forward the application status and classification of value enterprise management model, and explores the construction strategy of value enterprise management model.

## 1. Introduction

The maximization of enterprise value has always been the goal of enterprise production and management. The value-based enterprise management model was put forward after 1990, which has been widely recognized by people and has become a common means in the current enterprise management. At the same time, the concept of enterprise value also belongs to the category of modern financial management, which is the key to enhance the development potential of enterprises. At present, with the rapid development of China's economy, the number and scale of enterprises are also expanding, which makes the industry competition intensify. Only by optimizing and reforming the management mode, can we gain a firm foothold in the market and enhance their core competitiveness. In addition to pursuing the maximization

of interests, we should also pay attention to the shaping of the core values of enterprises to meet the needs of future development. However, many enterprises can not completely get rid of the limitations of the traditional management model, resulting in the lack of standardization of their operation. For this reason, we should start with the basic characteristics of value-oriented enterprise management and the current situation of enterprise development, formulate a targeted management model construction plan, and achieve scientific guidance for daily work.

## 2. The Concept of Value Enterprise Management

The ability of the enterprise to create cash flow in the future is the enterprise value, and the value enterprise management is the management way to maximize the enter-

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prise value, which includes not only the output of services and products, but also the output of values and ideas. All kinds of income claimants work together to form an enterprise, so the risks faced in obtaining cash flow will be different due to differences in shares. The enterprise value is proportional to the cash flow of the enterprise, at the same time, the enterprise value will also be affected by the discount rate, which also determines the ability to bear the risk. Under the concept of value-oriented enterprise management, the economic benefit of the enterprise can be significantly improved, and it is conducive to the innovation of values, enhance the development vitality of the enterprise, and promote the promotion of internal cohesion [1]. Especially in the post distribution, it can take the personal value of employees as the basis, ensure the optimal selection of talents, and realize the coordination and unity of the overall value of the enterprise, brand characteristics and management mode.

## 3. The Present Situation of the Application of the Management Model of Value-oriented Enterprises

Value-based enterprise management model is widely used in western developed countries, but its application in modern enterprise management in China is still in its infancy. The traditional management model is still common in small and medium-sized enterprises, but there are few applications of value-based enterprise management model, which mainly focuses on product cost and value creation, and fails to set effective management objectives. As a result, it is difficult to implement the system. In addition to being related to the development of an enterprise, the value enterprise management model also has an important impact on the social and economic development, especially under the trend of globalization, only by speeding up the construction of the value enterprise management model. In order to enhance the international competitiveness of Chinese enterprises [2]. Therefore, we should proceed from the present situation of the market development of our country, realize the effective integration with the traditional management mode, establish the scientific value idea, and lay the guarantee for the enterprise to enhance the economic benefit.

## 4. The Classification of the Management Mode of Value-oriented Enterprises

In the rapid development of enterprises, we should not only pay attention to financial indicators, but also pay attention to non-financial indicators, which is the key to the construction of value-based enterprise management

model, but also can speed up the construction and improvement of the evaluation system. It can improve the communication between enterprise managers and employees, and pave the way for the optimization of enterprise management mode. Secondly, the management model with profit as the core also needs to speed up the process of enterprise development planning on the basis of value creation. Under this management mode, the effective integration of staff input cost, capital cost and other elements can be realized, and the humanization of enterprise management can be improved [3]. Compared with the traditional management model, it can enhance employees' sense of trust and cultural identity, and fully stimulate the potential of employees. Cash flow is a key element in value evaluation, which can obtain the development potential of the enterprise and promote the level of internal management.

## 5. The Construction Strategy of the New Management Model of Value-oriented Enterprises

### 5.1 Clear Value Objectives

Value creation is the fundamental path for enterprise survival, so we should take a clear value goal as a guide, give full play to the advantages of value-based enterprise management, and enhance the standardization and systematicness of management work. Under the clear value target system, it can stimulate employees' enthusiasm and initiative, and have more pertinence in planning the future development direction of the enterprise, fully tap the development potential of the enterprise, and deal with the current market competition. The establishment of value goals is also the basis and premise for the implementation of fine management, to achieve the optimal integration and allocation of all kinds of resources to meet the needs of healthy and stable development of enterprises [4]. Only under the guidance of all employees under the guidance of the common value goal, can we form a strong and reasonable, maintain the consistency of the forward direction, and make the enterprise enter the stage of healthy development. At the same time, the value objectives should be refined according to the business nature and management needs, and the management workflow should be optimized in the combination of long-term goals and short-term goals. This helps employees to do a good job in the arrangement and handling of their jobs, and prevent the lack of motivation caused by unclear work objectives. Therefore, the enterprise development model should be innovated continuously on the basis of value goal and value orientation.

## 5.2 Analysis of Driving Factors

The summary and analysis of enterprise value driving elements is the key to speed up enterprise value creation, so managers should attach great importance to it. Especially in the fierce market competition, only by doing a good job in the integrated analysis of driving factors can we enhance the development vitality of enterprises and promote the efficiency of production and operation. The production efficiency of an enterprise will be directly affected by the driving factors of product sales, so it should be fully controlled in the management to make the production structure more reasonable, and at the same time avoid the risks in production and enhance the anti-risk ability of enterprises. The value drive has the characteristics of richness and diversification, and the driving factors are also different in different departments. The problem of any link will have an impact on the overall management of the enterprise and damage the value creation [5]. Especially since entering the new period, the reform process of the enterprise has been gradually accelerated, and great changes have taken place in the internal structure and product sales, so the dynamic characteristics should be maintained when analyzing the driving factors. It really reflects the value-based enterprise management to keep pace with the times. At the same time, it is also necessary to obtain changes in the external environment, including policies, markets and industry competitors, in order to make targeted changes. Strengthen the analysis of the changing law of value-driven factors, so that it can be truly transformed into the driving force for the development of enterprises.

## 5.3 Set Up the Core Idea

The construction of value management organization system is an important link in the implementation of value-oriented enterprise management. We should clarify the practical significance of value creation in the core concept and lay a foundation for the implementation of daily management. Strengthen the communication, unity and cooperation among all departments of the enterprise, clarify the division of labor and responsibilities of the departments, and enhance the participation of all employees in the construction of the organizational system. Managers should pay more attention to the management of value-oriented enterprises, create a good working atmosphere, and implement the concept and basic requirements of value-based enterprise management. Build a perfect information exchange platform to achieve seamless convergence of various departments, promote production efficiency, and prevent the emergence of poor communication. In particular, modern enterprises pay more attention to the construc-

tion of corporate culture, and they should also establish the core concept of value creation in this process, and give positive guidance to employees in the process of imperceptible. Implement their own job requirements under the unified coordination and overall planning of the organizational system [6]. To achieve the division of management responsibilities, the effectiveness of value-based enterprise management into the assessment system, to enhance the enthusiasm of work.

## 5.4 Enhance Brand Awareness

In the long-term development of enterprises, we should also enhance their own brand awareness, which is conducive to the implementation of the management objectives of value-oriented enterprises, and can enhance their own influence by creating a good brand image. As an intangible asset of an enterprise, it can create good economic benefits for the enterprise. Starting from its own business characteristics and development status, formulate targeted strategic planning to promote the promotion of brand efficiency and the formation of word-of-mouth, so that the competitiveness of enterprises has been continuously enhanced, to achieve overall control of the enterprise. Continuously improve the quality of products and services of enterprises, adjust and optimize according to the actual needs of current users. Through brand operation, promote the expansion of market share and enhance the legal awareness of enterprises [7].

## 5.5 Improve the Literacy of Personnel

The improvement of the professional ability and literacy of managers can also speed up the construction of a new model of value-oriented enterprise management and realize the optimal allocation of enterprise resources. At present, many managers are lack of professionalism and have a low degree of awareness of value enterprise management, so they should make targeted training plans according to the characteristics of their posts to improve their knowledge literacy and skill operation. It can meet the requirements of enterprise management in the new period and create great value for enterprises on the basis of value enterprise management model. In the training work, we should adhere to the principle of combining theory with practice, train high-level comprehensive talents, and build a working team with excellent professional quality. Attach importance to the selection of managers, formulate a sound talent selection system, enhance the healthy competition within the enterprise, so that managers can establish a sense of crisis, develop the concept of lifelong learning, and implement the standard requirements of value-based enterprise [8].manage-

ment in the course of continuous progress. Strengthen the effective assessment of the training work to prevent formalized problems in this process. Through special training, special lectures and other forms to create a good working atmosphere and speed up the promotion of advanced ideas of value-oriented enterprise management. At the same time, it is necessary to improve the current talent recruitment mechanism, evaluate and inspect the comprehensive management ability of talents, so as to ensure that they have advanced management concepts and are competent for the management of enterprises [9].

### 5.6 Adhere to People-oriented

People-oriented is a common concept in modern enterprise management, which can also speed up the construction of value-oriented enterprise management model and reflect the role of human resources in value creation. The competition between enterprises is more the competition of talents. Only by ensuring the rich reserves of human resources can we be in an invincible position in the competition and create economic benefits for enterprises in the realization of personal value of talents. Therefore, the current salary and welfare system should be improved to make it more able to mobilize the enthusiasm and initiative of employees, and enhance talents' sense of identity and trust to enterprises by strengthening labor security. Establish a fair and transparent assessment system, so that the personal value of outstanding employees can be reflected. Through the construction of incentive and restraint mechanism, we can lay the foundation for attracting and retaining talents, and meet the requirements of human resource management at the same time [10].

### 6. Summary

The construction of a new management model of value-oriented enterprises is not only the inevitable trend of the development of modern enterprises, but also an important way to improve the overall management level of enterprises. Financial and non-financial indicators, with profit as the core and cash flow as the core, are the basic classification of the current management model of value-oriented enterprises, and their roles will be different in different types of enterprises. In the practical work, it is necessary to make clear the value goal, analyze the driving factors, establish the core idea, enhance the brand

awareness, improve the personnel literacy and adhere to the people-oriented and other ways, through the value-oriented enterprise management work to create huge economic value and benefits for the enterprise.

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# ARTICLE

# Research on the Marketing Strategy of Online Education - Taking New Oriental as an Example

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## ARTICLE INFO

## ABSTRACT

In recent years, with the development of society and the progress of science and technology, online learning has penetrated into people's daily life, and people's demand for high-quality curriculum products is more and more strong. From a macro perspective, the continuous growth of national financial investment in education, the continuous upgrading of China's consumption structure, the development of 5G technology and the popularization of AI intelligence make online teaching less limited. The online education industry is showing an explosive growth trend. More and more online education institutions are listed for financing, and the market value is soaring. However, in 2019, except for GSX, the latest online learning platforms such as New Oriental, Speak English Fluently and Sunlands, have been in a state of loss. Most of these agencies seize the market by increasing advertising investment, but at the same time, they also bring huge marketing costs, which affect the financial performance of the company. With the enhancement of Matthew effect, large-scale educational institutions occupy a large market through free classes and low-price classes, while small and medium-sized institutions with weak capital strength are often unable to afford high sales costs, facing the risk of capital chain rupture. Taking new Oriental online as an example, this paper analyzes the problems existing in the marketing strategies of online education institutions. It also puts forward suggestions on four aspects, which are target market, differentiated value, marketing mix and marketing mode, so as to make sure that online education institutions can control marketing expenses and achieve profits by improving course quality, expanding marketing channels and implementing precise positioning.

## 1. Overview of Online Education

With the development of mobile Internet technology and the acceleration of education industrialization in China, the traditional teaching mode has undergone fundamental changes in the means of knowledge dissemination. Online institutions have seized the opportunities of the Internet, forming many online education platforms such as Kaochong, Scallop Net, Ape Tutoring, etc. In 2019, New Oriental successfully listed on the Hong Kong Stock Exchange. In the same year, more than 8 well-known online education enterprises entered the stage of listing, which marks the entry of online education institutions into the international capital market.

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## 1.1 Steady Increase of Market Scale

According to the statistical data of China online education industry market outlook and investment strategic planning analysis report released by prospective industry research institute, China's online education industry has seen explosive growth since the development and popularization of mobile Internet in 2011. By 2019, China's online education market has exceeded 300 billion yuan, with a growth rate of 30%. The number of online education users reached 261 million and the number of consumers increased steadily [1].

Under the influence of the epidemic, online education platforms have also received flow dividend. With the announcement of stop going to school but not stop learning, the total number of online education apps, such as Homework Help, Ape Question bank and Learning Together, has exceeded 150 million. The postponement of face-to-face teaching has become the main reason that promotes the students to choose online teaching. In addition, the extended holidays also provide workers with opportunities to enrich themselves. According to statistics, online education users aged 30-39 account for 59%. The popularity of vocational education has also promoted the emergence of online education platforms such as Hengqi Education, Gaodun Online School and Woying Education.
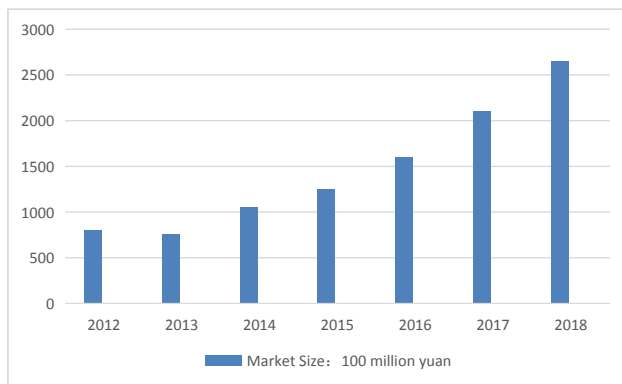


**Figure 1.** China's online education market size and growth trend in 2011-2018
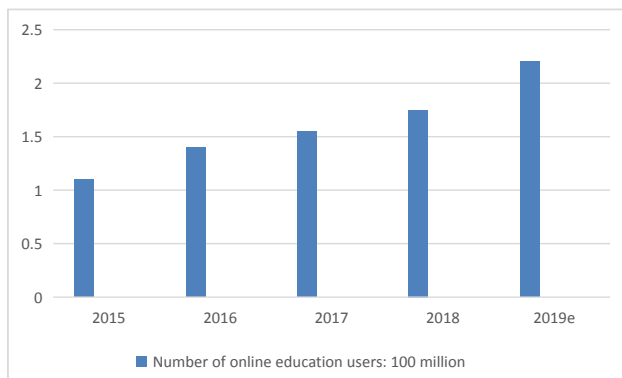


**Figure 2.** Number of online education users

## 1.2 Variety of Online Education Products

With the increase of the number of online learners, social capital is optimistic about online education enterprises with development potential. With the development of market demand, new online education products are emerging. Online education product is a course system composed of service and technology [2]. According to the needs of users, target markets can be subdivided into counseling tools, language, IT, vocational education and other types. Diversified online education products can better meet the actual needs of customers, making the entire online education industry show the characteristics of personalized development.
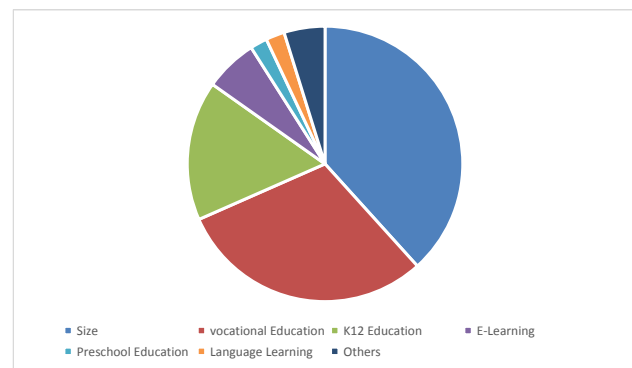


**Figure 3.** Market division of online education industry

## 1.3 Unicorn Appears in Online Education Industry

Unicorn enterprises are regarded as the wind vane of new economic development in the field of venture capital. Unicorn enterprises, mainly in the field of Internet, have a huge scale. And the current development situation is pretty good for them. According to the report, by the end of 2018, 11 unicorns had been born in China's online education industry. VIPKID has become a unicorn in the field of children's English online teaching with a total value of US $3.5 billion, gradually widen the gap with other brands. In addition, a number of online tutoring enterprises, such as Ape Tutoring, Youdao and Hujiang online school, seize the golden opportunity of the development of mobile Internet technology, take active and effective marketing strategies to expand rapidly, and become familiar brands in education industry.

## 2. Analysis of New Oriental External Marketing Environment

### 2.1 Macro Environment Analysis Based on PEST

New Oriental online is a professional online education

website of New Oriental Education & Technology Group. It relies on a powerful teaching staff and rich teaching resources to teach online. Macro environment is the key to restrict and influence the marketing activities. It is also the key factor to realize the goals of the enterprise. The changeable market environment not only opportunities but also challenges to enterprises. We use PEST analysis method to evaluate the external macro environment of New Oriental, and predict the development trend of online education platform in the future. It is beneficial for New Oriental to improve its marketing strategy.

### 2.1.1 Politics

In recent years, China has issued a large number of policies to support the development of education and training industry. Laws and regulations such as law on the promotion of private education and measures for the administration of vocational training institutions have been promulgated. In 2018, the state issued a special online education standard to supervise online education institutions. Although regulation has slowed the explosive growth of online education to some extent, in the long run, policy constraints are conducive to the industrialization and standardization of online education, and provide policy guidance for the continuous injection of social capital. In addition, the government's increasing financial expenditure on education also guarantees the development of the education industry [3].

### 2.1.2 Economy

According to the data of the National Bureau of statistics, in the first quarter of 2019, the per capita disposable income of the whole country was 8493 yuan, an increase of 8.7% over the same period of last year. Among them, the per capita disposable income of urban residents increased by 7.9% and that of rural residents by 8.8%. In terms of consumption expenditure, the national per capita consumption expenditure is 5538 yuan. The per capita expenditure on education, culture and entertainment was 548 yuan with an increase of 20.6% than last year, accounting for 9.9% of the total consumption expenditure. And it shows a growing trend. In 2019, the added value of China's tertiary industry accounted for 53.9% of GDP with an increase of 6.9% over last year. The economic structure continued to be optimized. With the development of economy and the improvement of income level, people put more money into education. A large number of online education and training institutions have been created by the certificate craze, heat of entering school and study abroad, which has also promoted the expansion of private educa-

tion and training market.

### 2.1.3 Society

There is always the thought of attaching importance to education in Chinese traditional ideas. In today's increasingly solidified social class, education may be the most direct way to change people's fate. Chinese families are generally willing to invest a lot of money for their children's education, which includes millions of expensive school district houses and various extra-curricular classes. The huge expenditure on children's education has become a social norm.

There are also widespread concerns in the workplace. The employment situation is becoming increasingly severe and the business environment is changing with each passing day. Only by improving their competitiveness can they remain invincible in the workplace. The amount of knowledge and information that individuals have gradually become the key to improving their core competitiveness. This also leads to the management skills and e-learning courses occupy the mainstream position.
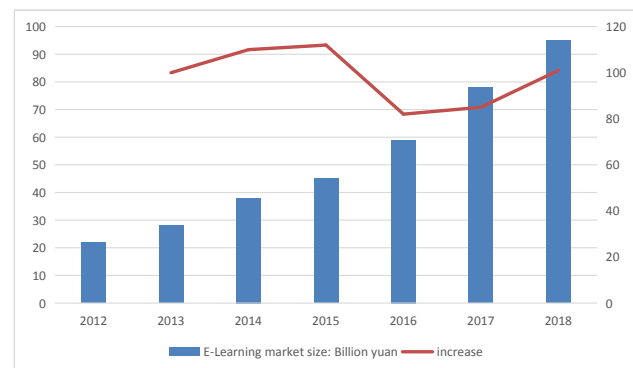


**Figure 4.** E-Learning market zize

### 2.1.4 Technology

The development of network and communication technology has changed the traditional teaching method and the form of interaction between teachers and students. Video and live broadcast provide a variety of possibilities for online learning. Using the big data to analyze customers and monitor the traffic in live broadcast. Using scientific and technological means to provide consulting services, precise positioning and notification. Users can be targeted for content marketing. The development of AI technology realizes teachers' guidance and supervision of students' online activities, which makes the limitations of online teaching less and less [4]. The online learning pattern that combine 5G+AI+ education may have already transcended the leading position of "Internet + education", and has become a new topic to promote the specialization and in-

tellectualization of the education industry.

## 2.2 Analysis of Industry Competition Based on Five Forces Model

Porter's Five Forces Model builds an industry analysis and evaluation system. The comprehensive analysis of the five forces can effectively analyze the competitive situation of online education industry and can also affect the formulation of New Oriental online marketing strategy.



**Figure 5.** Porter's Five Forces Model

### 2.2.1 Competitive Rivalry

The development of network and communication technology makes the threshold of online education lower and lower, and a large number of small institutions seize the opportunity to occupy the market. There are not only traditional educational institutions such as XRS online school, Litchi micro class and Wanxue education, but also Internet giants. The Internet giants such as Tencent, Alibaba, Byte Skipping, etc. make use of their strong technical strength to rapidly layout in the industrial chain of online education.

Although there are many products, the homogenization is very serious. Many online education platforms have the same industry status, brand influence and even the business model. In addition to the courses developed by the platform itself, many courses are sold on different platforms. Price competition under the same quality of products makes it more difficult to retain customers.

Under the influence of the epidemic, large institutions launched "donation" activities to attract more students. Although free courses attract a lot of traffic, they also pose a major test to the profit model and backstage operation of online education institutions. Under the Matthew effect, only institutions with strong financial support can become stronger, while small institutions with insufficient financing

capacity are often unable to expand. Under the epidemic situation, investors are pouring money into online education concept stocks. From this perspective, large online training institutions also face multiple opportunities [5].

### 2.2.2 Threats of New Entrants

The entry threshold of online education industry is low, attracting a large number of start-up companies and Internet industry giants. The competition has entered a white-hot stage. As long as we master the basic website development technology and operation technology and have a certain number of teachers, we can start the business. Low barriers to entry the market is the common feature of this industry. However, it is not easy to have a breakthrough in the Red Sea. Giants with a large amount of financial support are often able to attract customers through advertising, and their product quality is more guaranteed, which also brings the risks to new entrants. Nevertheless, there are many new entrants such as Programming Cat and Miao Xiaocheng aiming at the blue sea of children's programming, and they have achieved success. Coursera，MOOC.org, KHANAC-ADEMY and other well-known foreign online education platforms will also become potential competitors in the domestic online education industry under the background of globalization and expansion strategy.

### 2.2.3 Bargaining Power of Suppliers

The upstream suppliers of online education industry are mainly software and hardware enterprises such as network service providers, software providers and mobile device providers. However, these enterprises are often in a monopoly position, and the relatively scattered small and medium-sized online education enterprises basically have no bargaining advantage. Tencent education, NetEase open classes often rely on their own strong Internet technology while large enterprises such as Hujiang online school, New Oriental online school and XRS online school often invest a lot in developing their own online systems.
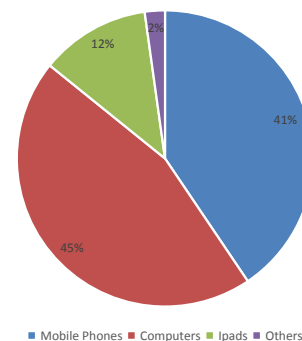


**Figure 6.** Distribution of the use of online learning devices

### 2.2.4 Bargaining Power of Buyers

With the opening of the two child policy, the adjustment of the consumption structure and the increasing attention of the 80's and 90's parents to their children's education, people's demand for online education is more and more vigorous. However, compared with the offline courses that need thousands of yuan, people still think that the marginal cost of online courses is low so they can't accept the price of hundreds of yuan. College students, in particular, turn to pirated online courses. Fundamentally speaking, China's consumers have a lower awareness of payment. However, it also reflects that the bargaining power of the buyer is low, and some consumers still can't accept the price of online courses [6].

### 2.2.5 Threat of Substitute Products

In addition to online teaching, there are also offline education and other traditional teaching ways. Offline education has incomparable interaction between teachers and students and good teaching environment. Even the industry leaders like New Oriental have been striving to restore the offline environment technically. Therefore, online education can not fundamentally replace the traditional offline education. However, online education is more personalized. It can accurately locate the needs of users through algorithms and big data, and has massive information resources and high-quality teachers, which is a supplement to offline education.

## 3. Analysis of New Oriental Online Internal Marketing Environment

### 3.1 Overview of New Oriental

New Oriental online is a professional online education website of New Oriental Education Technology Group, and one of the first professional online education websites in China. It is dedicated to providing personalized, interactive and intelligent online learning experience. Since its establishment in 2005, it has expanded its business beyond business training. It expands its business and introduces such businesses as postgraduate entrance examination guidance course and multimedia learning library of University Digital Library. As an English training start-up enterprise, New Oriental has a strong teaching staff and rich teaching resources, and its brand image is deeply rooted in the hearts of the people. On March 28, 2019, New Oriental online listed in Hong Kong, with revenue increased by 41%. In March 2020, the market value of New Oriental online was 30.456 billion Hong Kong dollars, and the rise was still significant.

As a traditional old-fashioned education and training enterprise, New Oriental, affected by the epidemic, cancelled offline courses in an all-round way, resulting in a large loss. However, the online education platform's share price has risen, reaping huge online traffic dividends and developing rapidly.

### 3.2 New Oriental Online Marketing Strategy Analysis

4P marketing theory is to formulate marketing strategies from the perspective of management, which is the basic framework of marketing theory. The main factors that affect the realization of marketing objectives are uncontrollable factors such as market environment and controllable factors such as products, prices, channels and promotions. The analysis of New Oriental online through 4P theory is conducive to develop a more perfect marketing strategy.



**Figure 7.** 4P Theory

### 3.2.1 Product

(1) Comprehensive Learning Platform

New Oriental online is committed to building an intelligent teaching platform for the whole learning section, and establishing a comprehensive ecological education system. Its courses cover six categories: studying abroad, vocational education, domestic examination, k12 education, etc. It has more than 3000 courses to meet the actual needs of different customer groups. For example, English courses include both basic English exam oriented education for K12 and English training for urban elites. The

diversity of courses ensures the comprehensiveness of the contents.

(2) Quality Products and Services

New Oriental has a high class fee, high salary and a team of top teachers. At present, teachers' doubt is the pain point of the industry, and many users suspect that education and training institutions are over packaged. New Oriental online has built a clear teacher system to eliminate user misunderstanding. In addition to the above comprehensive characteristics of the course, New Oriental online has many original courses, inviting famous teachers to take classes through live and recorded broadcasting. In terms of service, New Oriental online's learning companion function provides users with services such as homework inspection and Q & A.

(3) Intelligent Education Products

New Oriental online launched "intimate college entrance examination" and "intimate TM IELTS" products, thus forming the intelligent product layout of intimate series. It optimizes the learning content of students through big data operation, and accurately locates the weak knowledge points of students. In addition, New Oriental online uses AI technology to analyze the user's focus time by capturing the user's learning habits and building an exclusive learning model.

### 3.2.2 Price

(1) Differential Pricing

Most courses of New Oriental online are priced between 600 yuan and 4000 yuan. Among them, most of the large class are within 1000 yuan. The price difference is also reflected in the number of hours. There are 88 class hours in the 600 yuan CET-4 clearance class, and 215 class hours in the 1500 yuan IELTS clearance class. The price difference is also reflected in the level of customer demand. Ordinary users are priced according to different stages of primary school, junior high school and senior high school, and the price is relatively low; VIP users are equipped with one-to-one service of gold medal lecturers according to the specific needs of users, and the price is relatively high.

(2) Pricing According to Consumer Psychology

n 2019, the sales expense of New Oriental online reached more than 400 million yuan, and the customer acquisition cost increased to 3000 yuan. High marketing and sales expenses make new Oriental online underperform. Some online education platforms have even launched one yuan courses to attract customers. Low price competition has become an industry fact. But for New Oriental online, excellent brand reputation and customers' trust in the brand ensure higher price than the

industry's average level.

### 3.2.3 Place

(1) O2O Integrated Marketing

New Oriental has a relatively complete offline education system, and has accumulated 20 million offline students. Through cooperation with Tencent, it introduces o2o mode, that is, to transfer offline customers to the online, and effectively integrate online and offline customer resources. Users can register by browsing courses on the web page [7].

(2) Chain operation

New Oriental has branches in many cities, covering all provinces and cities in China, mainly in Beijing, Guangdong and Shanghai, mostly in urban commercial areas or residential areas. The decentralization of the campus is conducive to the chain operation of enterprises. Users can see the New Oriental at the door of their home without going far. As a vital marketing strategy, decentralized campus is conducive to efficient marketing.

(3) Working with schools

New Oriental spreads all over China's first and second tier cities, and gradually spread to all schools. It relies on teachers and students for campus marketing. It attracts customers by providing free lectures and free examinations. Through cooperation with colleges and universities, public online courses are provided for college students, and examination system is opened for teachers to make questions.

### 3.2.4 Promotion

According to the consulting data of AI media, 44% of users dislike online education institutions to sell courses through direct telephone sales. Traditional direct selling methods, such as telephone direct selling and door-to-door selling, are not suitable for the sale of today's online education products because of their personal harassment to users. Online products are mostly promoted in the following ways [8].

(1) Online Selling

Through network promotion, we can achieve the effect of "moistening things silently". New Oriental online uses background data to accurately push users' learning needs and content preferences It analyzes users' age characteristics and consumption characteristics to portray customer group portraits. As a result, it realizes accurate marketing and saves a lot of costs. The main form is advertising links on official websites and other websites.

(2) Experiential Selling

The way of experience before payment is more human-

ized, which is also the main channel for online education platform. New Oriental online launched free trial courses and one yuan courses to attract customers' consultation and to improve users' willingness to pay for renewal through high-quality teaching content. During the epidemic, New Oriental online assisted in "no suspension of classes" and opened all live online spring classes for free. For the cancellation or delay of IELTS and TOEFL test, New Oriental online opened 100000 online courses for studying abroad for free. As an eye-catching "beach product", the free course sets up the brand image of the enterprise, laying the foundation for the later transformation of customers [9].

(3) Word of Mouth Marketing

The development of social network makes oral evaluation become an important standard to measure brand image. Compared to high advertising costs, praises on micro-blog, WeChat and tiktok on online education products are more economical and effective. Word-of-mouth marketing includes not only the flow snatch through the endorsement of the celebrity teachers, but also the course experience and evaluation in the form of soft articles. In the New Oriental online course page, it is not difficult to find the notes and experience of students, which also becomes an important way for consumers to understand the New Oriental brand. Therefore, it requires online course platform to optimize the information of social media such as microblog, so that the search keywords are all good for brand image.

## 4. Analysis of Marketing Problems of New Oriental Online

### 4.1 Product and Service Defects

The quality of courses, the perfection of services and the technical support of the platform are the core competitiveness of online education enterprises. As a latecomer of online education, New Oriental has some defects in its products and services compared with leading enterprises in the industry such as XRS, Ape Tutoring and Homework Help.

### 4.1.1 Weak Online teaching System

As an old offline training and education institution, the majority of New Oriental's teachers are online and offline, and the focus is obviously biased. New Oriental launched K12 as an online course after 2017, while K12 has always been the core business of New Oriental offline. The difference between online and offline makes its offline agencies gather a large number of excellent teachers. Teachers gen-

erally lack online teaching experience.

### 4.1.2 Insufficient Background Technical Strength

Under the epidemic situation, a large number of users and traffic have flooded in, and the explosive growth of online population has resulted in New Oriental online's teaching interface and app becoming stuck. New Oriental online is not fully prepared for the surge of users and the servers are prone to be paralyzed during peak hours. According to the 2018 special survey of aimedia consulting, 57.1% of consumers are dissatisfied with online education platform, which is far higher than other reasons. Therefore, the lack of background technology strength has become the main factor affecting the quality of online courses [10].
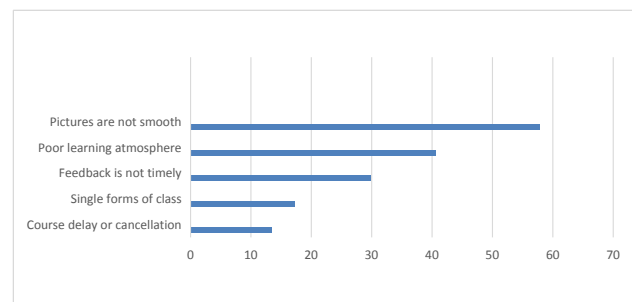


**Figure 8.** The problems of live class

### 4.2 Defects of Marketing Network

The free channels of marketing network include SEO, self media, official account, community, etc. The payment channels include SEM, information flow advertising, local promotion and circle promotion. All these require a lot of effort to manage content and transform customers through advertising. However, online educational institutions often follow the blind trend of product promotion - low price and network marketing. Or they advertise on social platforms like WeChat official account and micro-blog. It's not creative. The marketing network often ignores the differences of customers and does not design the promotion strategy for the market segments. It can not reflect the agrncy's own brand characteristics and advantages. In the long run, ignoring the comprehensive positioning will lead to the low promotion efficiency of online education institutions.

### 4.3 High Customer Acquisition Cost and Long Investment Return Cycle

With the increasing competition in online education industry, the cost of customer acquisition in the market has increased significantly. The customer acquisition cost of the whole online education institution is more than 3000

yuan, which leads to the increasing sales expense of New Oriental online, accounting for more than half of the business income. In 2019, New Oriental's sales expense increased by 63.3% compared with that of 2018, resulting in a large increase in cost. Not only New Oriental, but also Fluent English, Worry Free English and Suntech's marketing expenses have reduced the company's gross margin. The loss has become the overall trend of online education industry. The fundamental reason lies in large-scale advertising investment. Therefore, changing the randomness of advertising effect is the fundamental way to improve marketing effect and reduce marketing cost. Although several online education institutions are generally losing money at present, the loss rate continues to narrow and the profit return from investment is not far away.
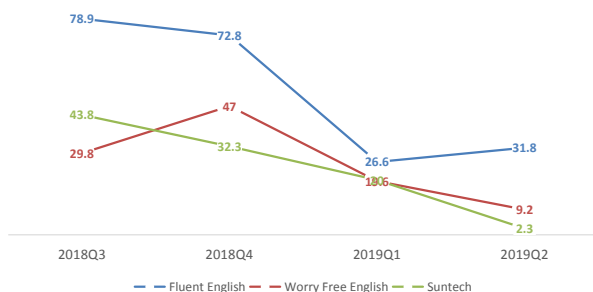


**Figure 9.** Quarterly loss rate of typical online education enterprises in China

### 4.4 Low Rate of Continuing Classes

Along with the "advertising war" of online education institutions, there is a "price war". In order to attract traffic, expand the scale and increase the market share, many online education institutions have implemented the marketing strategy of "seizing the market at a low price". Beijing New Oriental Youneng middle school implemented 50 yuan class of mathematics summer vacation, and Ape Tutoring launched 14 classes of 49 yuan, including Chinese and mathematics, and sent a full set of books; Homework Help launched 8 low-cost classes of 50 yuan. However, a large number of users gathered in a short period of time will bring great challenges to the teaching resources of the institution. Even if the course price is lower, if the teaching quality cannot be guaranteed, the experience of students will not be good, and the continuation rate will not be improved. It will bring bad influence to brand image.

## 5. Measures and Proposals

### 5.1 Target Market Positioning

Target market positioning is to focus on the needs of us-

ers, build user profiles with big data, and provide users with the content they really need. College students pay attention to postgraduate entrance examination, city workers pay attention to skills training and primary school students pay attention to various examinations. Different age stages and different user identities correspond to different curriculum needs. After finding the users, we can achieve product marketing according to the following three points.

### 5.1.1 Product Category Positioning

Clear course positioning can be used as an effective entrance for enrollment and marketing. After targeting, we can offer courses such as TOEFL IELTS, children's English, children's programming, etc. to improve the functions of the courses according to the needs of users. For example, in children's English learning, parents pay more attention to pronunciation practice, word spelling, language sense training and other basic links. Online education institutions can focus on training children's abilities according to the requirements of users when designing courses.

### 5.1.2 Value Mix Positioning

The components of curriculum products mainly include time, price, content, class hours, etc. Online education institutions can flexibly combine these elements according to the needs of customers to maximize the use value. For example, how to select the most efficient time for live broadcast, how to introduce low-cost courses into normal price courses, and how to arrange the content need to be considered.

### 5.2 Positioning of Differentiated Value Points

The differentiated value points include the cultural value, brand image, reputation and teaching concept of online education institutions. They can make new Oriental online different from other institutions in the market.

### 5.2.1 Brand Image

To build the brand image of online education, enhance the loyalty of users, and eliminate the duplication or low-cost plagiarism of other competitors, we need to clarify the unique value characteristics of the company. In terms of brand building, New Oriental's original school motto of "New Oriental Spirit", "language is power", "promoting the integration of Chinese and Western cultures", as well as its leading position in the fields of study abroad guidance, English teaching, etc., have become a strong competitive advantage of New Oriental in the online education industry. Similarly, the shaping effect of New Oriental

corporate culture on students' values has become one of the reasons for attracting more consumers to choose New Oriental.

### 5.2.2 Technological Innovation

With the popularization of AI and big data technology, intelligent online education has become the future development direction of the industry. AI technology can achieve online job grading, intelligent face recognition, and can also provide technical support for the development of personalized education based on big data analysis. It can provide private customized solutions for user data differential analysis. At the same time, the increase of technology research and development also effectively guarantees the clarity and stability of the screen in the process of live or recorded broadcast of online education platform.

### 5.2.3 Experience Marketing

In order to promote the sales of curriculum products, we should not only grasp the quality of curriculum, but also pay attention to service and experience, emotion, sense and other aspects. Online teaching is different from the traditional offline teaching method, and its interactivity is relatively poor. Therefore, New Oriental launched online Q & A, after-school tutoring and two teachers in parallel mode to create a vivid course experience.

### 5.3 Marketing Mix Positioning

### 5.3.1 Curriculum Integration

The drainage course in the early stage should be matched with the regular course in the later stage, so that the course setting has continuity. For example, in the drainage stage of English training courses, low-price phonetic symbols and pronunciation courses can be set up; in the drainage stage of vocal music courses, low-price Spectrum Reading courses can be set up. The early courses are mainly to arouse users' interest in learning. After the completion of the drainage course, we must make it clear that only by continuous learning can we master the essence of the course systematically. That is to say, the drainage class should be set up to meet the needs of the students at different stages.

### 5.3.2 Price Differentiation

Customize reasonable price range and set corresponding core courses in each price range. Investigate the sensitivity of users to price in the market and price within the range that users can accept, so that customers can get the maximum sense of gain and the highest cost performance

in different price ranges.

### 5.4 Innovative Marketing Model

According to iResearch statistics, in 2019, Fluent English, Worry Free English and Suntech institutions are still in a state of continuous loss. In 2018-2019, New Oriental online's sales and marketing expenses and administrative expenses increased by nearly 100%, and its marketing expenses increased by 98.2% from 224 million yuan in 2018 to 444 million yuan in 2019. New Oriental's online gross margin has been hit by the sharp rise in costs and sales. Therefore, it is very important to adopt more prudent marketing strategy, innovate marketing mode and control large-scale advertising investment.

### 5.4.1 Impulsive Consumption Through Group Purchase

Group buying refers to that when selling on a certain platform, as long as a certain number of people are gathered, there will be a preferential price for group buying. Secondly, the use of social network secondary fission marketing is also conducive to the rapid spread of online courses, and the acquaintance order is more guaranteed. It can increase course sales. In 2018, the survey of online users' attitudes towards online shopping shows that most users admit their impulsive consumption.
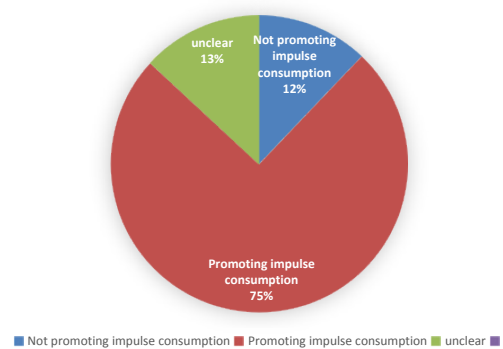


**Figure 10.** Survey Results of Users' Attitudes towards the Group Purchase

### 5.4.2 Precise Data Marketing

The main reason for large-scale advertising investment is that there is no accurate data analysis and targeted advertising. Online education institutions can integrate customer information to ensure that it can be searched from multiple dimensions. Taking children's English training course as an example. Its dimensions can be constructed by multiple data such as children's age, children's school class, children's performance, etc.

### 5.4.3 Crossover Marketing

In recent years, cross-industry cooperation has developed rapidly. Online education industry has also been deeply integrated with other industries. Mutual cooperation has achieved complementary advantages. Among them, there are cross-industry cooperation between online vocational education institutions and recruitment websites, as well as partnership between online English training institutions and computer manufacturers to ensure good experience of PC side while providing quality courses for English learners. In addition, the cooperation of online and offline education giants will also bring a win-win situation. The deep integration of online IT training giant "Beifeng Network" and offline IT training giant "Erudite Education" makes their products spread rapidly.

## 6. Conclusion

By analyzing the macro and micro marketing environment of New Oriental online and the defects of existing marketing strategies, this paper creatively puts forward countermeasures and suggestions for marketing. The radical marketing strategy is that "marketing" to the inside and "marketing" to the outside. Blind large-scale advertising investment will bring continuous losses and long return period of investment. Small and medium-sized online education institutions are often unable to survive in the market game due to capital constraints and poor financing. Only by accurately positioning the target market and opening up diversified channels for customers can online education institutions make a profit. At the same time, we can not ignore the construction a of the education brand. Promoting the standardization of the curriculum and the enrichment of the curriculum experience are the basic and primary premise of marketing. Only by forming their own characteristics can online education institutions attract more customers and make a profit.

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- A brief description of the novelty and importance of the findings detailed in the paper

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Abstract and keywords should be reflected as font size 14.

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The title should not exceed 50 words. Authors are encouraged to keep their titles succinct and relevant.

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# Ⅳ. Section Headings

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The introduction should highlight the significance of the research conducted, in particular, in relation to current state of research in the field. A clear research objective should be conveyed within a single sentence.

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In this section, the results of experiments conducted should be detailed. The results should not be discussed at length in

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