

On the Data Mining Technology Applied to Active Marketing Model of International Luxury Marketing Strategy in China-An Empirical Analysis

Qishen Zhou¹, Shanhui Wang^{2*}, Zuowei Yin¹

¹Gemmological Institute, China University of Geosciences (Wuhan)
Wuhan 430074, China, tel: +86-27-87550875/fax: +86-27-87550875

²School of Management, Ningbo Institute of Technology, Zhejiang University
Ningbo 315100, China, tel: +86-574-88229052 /fax: +86-574-88229052

*Corresponding author, e-mail: shanhui_wang@163.com

Abstract

This paper emphasizes the importance of active marketing in the customer relationship management. Especially, the data mining technology is applied to establish an active marketing model to empirically analyze the condition of the AH Jewelry Company. Michael Porter's Five Forces Model is employed to assess and calculate the similarity in the active marketing model. Then, the questionnaire analysis on the customer relationship management model is carried out to explain the target market and target customer groups of AH Jewelry Company. The cluster analysis and principal component analysis (PCA) are applied as data mining tool to investigate factors and problems that influence marketing effect of the AH Jewelry Company. The analysis results show that it becomes a key problem to enhance the customer loyalty and retain the customers under the changeable consumption environment. Data mining technology can help to analyze the historical data to produce the clients set which is most closed to the customer behaviors, and regards the most interesting information as the recommendation to the customers. Hence, marketing optimization strategy could be proposed as reference to manage the luxury marketing.

Keywords: information, data mining, active marketing model, luxury marketing

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1. Introduction

Data mining technology is now widely used in variant applications of the information system and decision making [1-4]. The fierce competition and changeable consumption environment in the luxury business background forces jewelry companies to pay more attention on the characteristic active marketing. Customer relationship management requires collecting the information and needs of potential customers, and to make a description about the preference and habits of the customers. It can be revealed in the individualized service. Information and data mining can produce useful recommendation for the target customers [5, 6].

Coming from Paris France, AH Jewelry Company specializes in production, processing and marketing of luxury goods including diamonds jewelry, gold jewelry and watches [7]. The brand has a long history and enjoys high reputation in the world. With high-speed and steady growth of Chinese economy in recent years, more and more luxury goods manufacturers has focused on the market in China, and AH Jewelry Company has extended the market scale to the mainland China. On the one hand, China's good economic environment provides AH Jewelry Company with great opportunities for development; and on the other hand, more and more big luxury brands into China caused a strong impact on the development of AH Jewelry Company in China. Although AH Jewelry Company at present has occupied a certain market share in China, AH Jewelry Company does not get full development in China, compared with perfect modern management system of other brands with long history [8, 9]. Facing the opportunities and challenges, from the consideration of long-term goal, AH Jewelry Company should have a thorough understanding of Chinese consumer culture and consumption habits and optimize marketing strategy in order to develop the strategy in accordance with the Chinese local habits [10-14]. That is the purpose of this paper.

Based on the AH Jewelry Company, by using SWOT analysis method and Michael Porter's Five Forces Model, this paper discusses problems in the process of marketing of AH Jewelry Company. And through the market survey to get the demand information of consumers, this paper makes promotion plan of marketing, in order to provide reference for other luxury goods to enter markets in China. In this paper, the research methods include survey analysis and statistical analysis.

2. Michael Porter's Five Forces Model Analysis of AH Jewelry Company

In this section, the author uses the Porter's Five Forces Model to analyze the five aspects including Bargaining Power of Suppliers, Bargaining Power of Buyers, Rivalry, Substitutes and Threat of New Entrants.

(1) Bargaining Power of Suppliers: according to Gem & Jewelry Trade Association of China, diamond jewelry accounted for 52%, gold jewelry accounted for 37%, and other material jewelry accounted for about 11% of all products [5]. Therefore, diamond jewelry is still the mainstream product of jewelry market, and diamond is still the main material source of jewelry products. However, the raw material of diamonds jewelry belongs to the scarce resources, so suppliers have strong bargaining power. Until the 1980s, De Beers almost monopolized the production and supply of diamonds, and the rough diamond De Beers selling accounted for 90% of the total market [7]. Later, under the strong appeal of anti-monopoly organization of countries in the world, the monopoly position of De Beers is challenged, but it is still the world's largest diamond jewelry supplier with strong authority in diamond supply.

(2) Bargaining Power of Buyers: because the jewelry consumption belongs to luxury consumption, real consumer groups almost are the upper class or people with high social status and identity. Therefore, they pay more attention to the brand culture, product technology and quality instead of price. But at present most of the buyers in China are not the real consumers, but for the investment or speculative motive. They prefer to buy at low price and then sell at a higher price, so they perhaps become sensitive to the product price.

(3) Rivalry: From the perspective of present situation of jewelry industry, jewelry enterprises basically can be divided into following three categories: state holding enterprises, overseas-funded enterprises, and private-owned enterprises.

(4) Substitutes: with the high speed development of China's economy, the global top jewelry brands enter China in succession in order to occupy the Chinese market. Some Hong Kong brands, for example, depending on understanding of Chinese consumer groups, designed products that meet the aesthetic preference of Chinese consumers. And most people can not distinguish the difference between these brands and the world top brands, so it is easier for these brands to win the favor of consumers.

(5) Threat of New Entrants: threat of new entrants in jewelry industry of AH Jewelry Company can be divided into three categories: Firstly, raw material suppliers; because suppliers have strong bargaining power when providing raw materials, and they share high profits and capital strength, it is easy for them to expand the industry chain downstream. Secondly, other luxury manufacturers; jewelry industry belongs to the luxury goods industry, so other luxury goods manufacturers are likely to choose jewelry industry when choosing to conduct transverse expansion. Thirdly, senior professionals in jewelry industry; because jewelry appraisal needs professional and technical personnel, jewelry companies provide good treatment for industry technological professionals. After they have certain experience to accumulate a wealth of resources, they would rely on their own strength to enter the jewelry industry.

3. Questionnaire Analysis and Results

On the basis of reviewing the marketing strategy theory at home and abroad, this section proposed the optimized marketing strategy of AH company through the empirical analysis. Empirical process is divided into three steps: firstly, obtained related data of AH Company by questionnaire, and conducted clustering analysis to determine the target market. Secondly, according to the segmentation of the market, do further research, and use the method of factor analysis, clustering analysis and principal component analysis to judge the effect of marketing strategy of AH Company. Finally, compare the improved marketing strategy

with the market research data, and constantly optimize the marketing strategy. The optimization analysis framework of the marketing strategy of AH Company is shown in Figure 1.

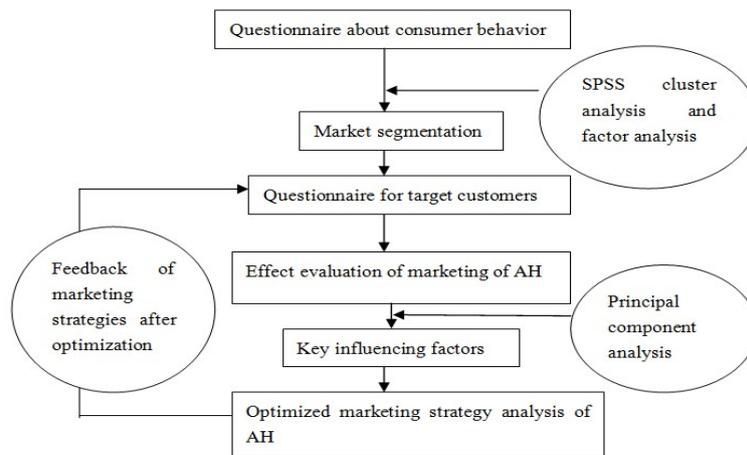


Figure 1. The Optimization Analysis Framework of the Marketing Strategy of AH Company.

According to the above marketing strategy optimization, the author needs to do two surveys and two questionnaires. The first questionnaire includes basic personal information, consumer buying decision process and life style. The basic personal information includes date of birth, level of education, income, and job nature. The five steps of buying decision process include consumer demand cognition, information collection, selection, purchase decision, and post-purchase evaluation. Lifestyle questionnaire includes three parts, consumer concept, interests, and behavior, which is called as "AIO" scale for short. According to Lecter standard, seven levels of evaluation points are divided in the table from "strongly disagree" to "strongly agree" [5, 7]. After the first questionnaire, based on the target customers of AH company, choose 14 important factors to conduct the second research. And according to the five levels of Lecter standards, grade from "very satisfied" to "not satisfied". 400 questionnaires were issued at the first time, and 386 questionnaires were retrieved. After strict screening of the income, age and other conditions of the questionnaire, the number of effective questionnaire is 323. Then 200 questionnaires were issued at the second time, and 141 effective questionnaires were retrieved.

3.1. SPSS Factor Analysis

The questionnaire presents 22 consumer behaviors according to seven levels of Lecter table, and conducts principal component analysis to the results. Main methods are as follows: statistically analyze 323 samples. If the characteristic root of variable is greater than 1, and the absolute value of load capacity of variable is greater than 0.5, a factor can be determined. Six factors match the standard with success rate of 69.949%. Therefore, these six factors can be analyzed. Table 1 shows the analysis results. Among six factors, those whose absolute values of load capacity are greater than 0.5 are shown in Tables 2~7.

Table 1. Characteristics Value and Variance Contribution of Six Remarkable Factors

Remarkable factor	Characteristic value	Variance contribution (%)	Cumulative variance contribution (%)
1	2.899	17.211	17.211
2	2.321	15.365	32.576
3	2.104	12.039	44.615
4	1.996	9.958	54.573
5	1.857	8.635	63.208
6	1.553	6.741	69.949

Table 2. Absolute Values of Load Capacity of the First Remarkable Factor

Description	Absolute values of load capacity of the factor
I relatively pay attention to shaping a good self image	0.731
I relatively attach importance to brand awareness of the product	0.723
I pay more attention to the quality of the product	0.698
I pay attention to clothing style, quality and match	0.602
Higher brand awareness means better quality	0.577
I buy products in line with my personality	0.521

Table 3. Absolute Values of Load Capacity of the Second Remarkable Factor

Description	Absolute values of load capacity of the factor
In my spare time I like to travel.	0.745
I like comfortable natural scenery.	0.703
I like fashionable life.	0.698

Table 4. Absolute Values of Load Capacity of the Third Remarkable Factor

Description	Absolute values of load capacity of the factor
I will consider my position and status when consuming luxury goods.	0.752
I like vigorous life.	0.693
I like to attend the banquet and kinds of activity occasions.	0.598

Table 5. Absolute Values of Load Capacity of the Fourth Remarkable Factor

Description	Absolute values of load capacity of the factor
I think I'm a winner.	0.741
I will constantly improve my life goal.	0.682
I would like to make continuous efforts for my career.	0.654

Table 6. Absolute Values of Load Capacity of the Fifth Remarkable Factor

Description	Absolute values of load capacity of the factor
I prefer to gather information from the Internet.	0.739
I will accept to obtain information from the advertisement.	0.614
I will choose to buy promotional products.	0.592

Table 7. Absolute Values of Load Capacity of the Sixth Remarkable Factor

Description	Absolute values of load capacity of the factor
I pay more attention to my needs instead of price when buying products	0.688
I will prepare special clothing for special occasions.	0.585
I think it is necessary to make friends with high social status.	0.531

The first remarkable factor represents, in turn, the pursuit of personality, self image and product quality. The second remarkable factor represents leisure and fashion. The third remarkable factor represents status and vitality of life. The fourth remarkable factor represents efforts and the pursuit of success. The fifth remarkable factor represents advertisements and promotion. The sixth remarkable factor represents demands of customers.

3.2. Clustering Analysis

According to the result of clustering analysis by the SPSS software, the values of the significant factors are all greater than 0.05, which shows that the result is significant. The clustering analysis results are listed in Table 8.

Table 8. Absolute Values of Load Capacity of the Sixth Remarkable Factor

Remarkable factor	The score of different categories of factors	
	The score of the first category	The score of the second category
1	-0.2158	0.2718
2	-0.3754	0.3198
3	0.3462	-0.2154
4	-0.1812	0.3011
5	0.3121	-0.1969
6	0.5013	-0.3701

From Table 8 above, the 1st, 2nd, and 4th factors can be classified as a category. People who pursue high quality life by working hard belong to the career consumers. The 3rd, 5th, and 6th factors can be classified as the other category. This group pursues leisure and comfortable life, so they belong to enjoyment consumers.

3.3. The Principal Component Analysis (PCA)

Conduct principal component analysis [15] for the results of the questionnaires and get 14 principal component factors. The first two factors are the remarkable factors according to the criterion mentioned above. Table 9 shows the PCA results.

Table 9. The PCA Results for the Remarkable Factors

Remarkable factors	Characteristic value	Variance contribution	Cumulative variance contribution
The first	5.313%	66.28%	66.28%
The second	1.862%	20.37%	86.65%

The summation of variance contribution of these two remarkable factors is more than 85%, which has representativeness. To be detail, influential factors for the first remarkable factor include brand, brand connotation, publicity strategy, processing technology and design level, and customer experience. And influential factors for the second remarkable factor include product differentiation and customer experience. Therefore, the insufficient of the marketing strategy mentioned above affects the marketing effect.

4. Discussions and Suggestions

Based on the research of consumers above, consumers can be divided into two major categories of "enjoyment consumers" and "career consumers". Enjoyment consumers pursue the casual, comfortable, and high quality life. They attach great importance to the inner feelings, and it is easier for them to accept new fashion. So for the group, enterprises should pay attention to shape the unique products, and increase the distinctive features of products to make this kind of customers eventually buy the products from the perspective of perceptual acceptance. Career consumers have abundant economy and they have the capability to buy all kinds of luxury goods. Moreover, their success in career makes them to have high requirement for quality. Therefore, enterprises should pay attention to the excellent quality of products in order to make them to buy products from the perspective of rational acceptance.

Due to the pursuit of high quality and high added value, jewelry brands should fully consider the characteristics of luxury goods to adjust the marketing strategy. In detail, following several aspects should be considered: Firstly, pay attention to advertising. The higher image and brand awareness luxury goods can bring more consumers' recognition. So the more well-known the brand is, the more easily it is accepted by consumers. Secondly, use the media. The public media such as television, newspaper is one of the important channels for consumers to get products information and at the same time it is a widely trusted and reliable channel to get information of consumers. The terms of salespeople in shops may be questioned by the consumers, but through public media such as newspaper or television, the products can be

much convincing. Thirdly, pay attention to celebrity effect. In modern society, celebrities have great promotion effect, especially for luxury goods. Therefore, enterprises can invite the best well-known figures in the art and fashion circles to conduct endorsement, to increase product awareness. Fourthly, pay attention to the network marketing. In the 21st century, network plays an important role in the life of people, and network innovation is changing people's way of life. The network marketing is becoming more and more important. Especially people with higher education and who are active in the fashion circle are closely connected with the network. According to data from KPMG about Chinese luxury report, in China more than two thirds of consumers get the information of the brands and quality of luxury goods through internet each month and at least one third of customers will update the new information about luxury goods every week. Fifthly, try to use news events. Through the news coverage about the events of the company such as anniversary celebration of AH brand, new store opening ceremony, various charity activities sponsored by AH brand and products exhibition tour, it not only has very good publicity effect in the intangible way, but also in very low cost. What is more, the recognition of charity activities can help consumers to accept and choose the brand.

5. Conclusion

The active marketing is based on the item rating prediction. According to the similarity of the items, the valuation from the clients can be managed by the active marketing model. The calculation of the similarity is introduced in this paper to find the neighbor set to the target customers. It is confirmed in this research that the information and data mining technology can provide powerful recommendation for the optimization of marketing strategy. The findings of this paper may provide valuable reference for the active marketing analysis of other companies.

Acknowledgements

The authors express their great thanks to the Editors and reviewers for their valuable comments to this work. The research work was supported by National Natural Science Foundation of China (NSFC) under Grant No. 71173079 and China Postdoctoral Science Foundation under Grant No. 2013M540612.

Conflicts of Interest

The authors declare no conflict of interest.

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