Analysis of User Portraits in the Cosmetics Industry

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ABSTRACT
With the development of big data, the use of computer technology to collect and analyze Internet data, form user portraits, and extract the characteristic tags of target users is conducive to the realization of precision marketing for enterprises. This paper selects the cosmetics industry for data analysis and constructs user portraits. The first is to review cosmetics research and user portrait research, then to collect and analyze the data of the cosmetics industry, establish user portraits, and finally put forward the significance of precision marketing based on the analysis results.

Keywords: *cosmetics, user portrait, cluster analysis, precision marketing*

1. INTRODUCTION

With the continuous development of the economy and the continuous improvement of people's living standards, more people will continue to enrich their lives, and various needs continue, which has successfully promoted the rapid development of various industries, among which the cosmetics industry has developed rapidly. In recent years, there has been a large influx of market competition, and new marketing methods through the Internet have occupied a large market. Using big data to analyze customer portraits will undoubtedly allow cosmetics companies to better formulate their own labels by targeting target groups. The marketing plan can improve the advantages of the company's products while reducing the cost and expenditure. In the context of the continuous upgrading of people's consumption levels, all kinds of products must meet the different needs of different groups of people, and future development is extremely important.

2. RESEARCH OVERVIEW

Many scholars and experts have done a lot of research on customer portraits, and there are many research papers across various industries. In the analysis of a single business industry, it will eventually lead to the formulation of product marketing strategies. Among them, there are more researches on consumer groups in a single industry of cosmetics related to precision marketing.

Domestic scholars Zeng Hong and others regard user portraits as labels of one or a class of users extracted from information such as users' social attributes, living habits, and consumption behaviors, which is the labeling of user information. Scholars such as Yu Chuanming proposed a behavior-content fusion model to improve various evaluation indicators of user portraits. Yang Yu and other scholars use the behavioral characteristics of customers to use electricity to build a multi-dimensional "customer portrait" model of the power supply system. Relying on big data analysis theory, they build a power supply service sentiment index model to quantitatively reflect customers'satisfaction with power supply services and predict potential public opinion. risk. Yuan Qirui achieved some user portrait empirical research through K-MEANS cluster analysis. It is found that the construction of online health community user portraits under the data-driven background can effectively realize personalized retrieval and accurate push, which is beneficial to enhance user stickiness, facilitate website promotion, and has important reference value for improving the precise service level of online health community platforms. In the ranks of specific products, scholars such as Li Yong and Tian Chaohui have constructed user portraits through models such as logistic regression, and contributed to the realization of precise marketing of specific products. In the ranks of cosmetics, Qin Zhongchi and others learned to collect L'Oreal's user portrait data, simulated and constructed a visual model, analyzed from five different dimensions, and analyzed the characteristic tags of L'Oreal users. Xu Wenyu researched the user portraits of the skin care industry, Wei Jingxue researched the user portraits of multinational cosmetics, and obtained the precise marketing of cosmetics.

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Foreign scholars P Kumar et al. used singular valued composition to mark network resources that users are interested in, and created user portraits to achieve personalized retrieval of users; MS Pan et al. analyzed the lighting needs of a single user, and constructed a contrasting user portrait, which was applied to lighting control. In the system, the lighting effect is further strengthened; Barysheva A et al. believe that user behavior data is related to the user's emotional state, and propose a model to predict emotions through individual user behavior portraits. Rafa Tahar proposed a semantic-based personalized information retrieval method. Scholars such as Nichifor Eliza used big data to create user images, found priority objects of different genders, and realized precision marketing.

3. MODEL ESTABLISHMENT

3.1. Data acquisition

The first step in building a user portrait is to obtain the basic information of the user. In the era of big data, most of the user's behavior data comes from the access records of various websites, including the user's browsing, searching, clicking, and jumping on the website. Turn and so on user behavior. In the big data technology, the web crawler technology is used to collect the behavior information of the target users, and through the association, the behavior preferences of the users are linked, which will help to build a user portrait model and conduct data analysis.

Data is obtained by crawling Weibo keywords. After deduplication, there are a total of 413 pieces of data. The data are as follows:

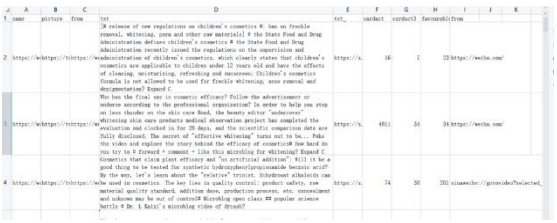

Figure 1 Data after deduplication

3.2. Create labels

The collected user portrait data is analyzed, and the user portrait label is extracted by using the data mining algorithm model to construct a user portrait label system. After word segmentation and word frequency, the word segmentation table is obtained as follows:

A	B	C	D
	In [		]:
	component	140	
	skin whiteni	122	
	product	103	
	skin	92	
	vitamin	90	
	sure	82	
	use	74	
	have	66	
	perfect	63	
	the skin	57	
	claim	55	
	Skin care	53	
	brand	46	
	children	44	
	is	44	
	The main	40	
	this	38	
	evaluation	38	
	oneself	38	
	The mask	38	
	propaganda	36	
	a	35	
	what	35	
	security	35	
	The essence	34	
	really	34	
	There is no	34	
	The raw mate	33	
	clean	33	

Figure 2 Word segmentation table

After removing some search terms, use Wordlout to generate a word cloud, create a visualization of the data, and analyze it more intuitively:

Figure 3 Cloud Map

From the distribution of the cloud map, it can be seen that people pay a lot of attention to the characteristics of cosmetics such as "skin", "ingredients" and "whitening", and then the different effects, publicity, variety, safety and other aspects of cosmetics are mentioned. It can be seen that people's attention to cosmetics is actually quite extensive.

3.3. Design Questionnaire

The questionnaire is designed according to the obtained user tags, including the user's basic information, consumption needs, consumption habits and usage preferences. The preset questionnaire frame is shown in the figure:

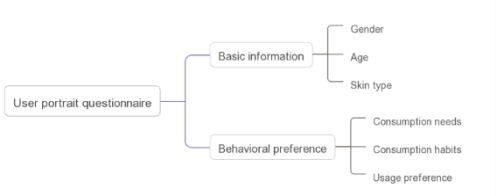

Figure 4 Questionnaire Framework

The online mode was used for the distribution and retrieval of the questionnaire, which also led to a higher

recovery rate of the questionnaire. In the experiment, 53 valid questionnaires were finally recovered, and the experimental recovery rate was 100%.

3.4. Questionnaire data analysis

3.4.1Frequency Analysis

3.4.1.1Single factor

Single factor according to the recovered questionnaire data, most of the questionnaire groups are women, and the frequency is as high as 83%, indicating that in terms of gender, women pay more attention to cosmetics than men.

gender

		frequency	percentage	effective percentage	Cumulative percentage
efficient	male	9	17.0	17.0	17.0
	female	44	83.0	83.0	100.0
	total	53	100.0	100.0	

Figure 5 Gender

According to the questionnaire design, the age is divided into four stages. The frequencies of the 18-25 and 25-30-year-old groups are 37.7% and 30.3% respectively, and the two groups account for the vast majority of the proportions, indicating that the groups in these two stages pay more attention to cosmetics.

age

		frequency	percentage	effective percentage	Cumulative percentage
efficient	under 18	10	18.9	18.9	18.9
	18~25years old	20	37.7	37.7	56.6
	25~30years old	16	30.2	30.2	86.8
	over 30 years old	7	13.2	13.2	100.0
	total	53	100.0	100.0	

Figure 6 Age

The proportions of various skin types are relatively similar, indicating that groups of various skin types need to be considered.

skin texture

		frequency	percentage	effective percentage	Cumulative percentage
efficient	oily	11	20.8	20.8	20.8
	dryness	8	15.1	15.1	35.8
	neutral	11	20.8	20.8	56.6
	mix	11	20.8	20.8	77.4
	have no idea	12	22.6	22.6	100.0
	total	53	100.0	100.0	

Figure 7 Skin Type

According to the table, the price is concentrated in the 100 to 300 yuan tier, with a proportion of 50.9%, and the remaining several tiers are more evenly distributed.

Price

		frequency	percentage	effective percentage	Cumulative percentage
efficient	less than 50 yuan	6	11.3	11.3	11.3
	50~100yuan	6	11.3	11.3	22.6
	100~300yuan	27	50.9	50.9	73.6
	300~500yuan	8	15.1	15.1	88.7
	More than 500 yuan	6	11.3	11.3	100.0
	total	53	100.0	100.0	

Figure 8 Price

3.4.1.2Multiple Effects

According to the frequency analysis of demand, the vast majority of people are more concerned about the acne-removing, whitening and cleaning effects of cosmetics, and the rest of the effects are more average. Considering it together with the skin type, you will find that people with specific skin types have different needs. Oily skin will pay more attention to acne removal, while dry skin will consider freckle removal.

$demand frequency

		response number of cases	response percentage	% of cases
$requires[a]	need acne	26	16.0%	49.1%
	Anti-aging	18	11.1%	34.0%
	need whitening	30	18.5%	56.6%
	need freckle	19	11.7%	35.8%
	Requires deep cleaning	33	20.4%	62.3%
	needs repair	18	11.1%	34.0%
	Need to get rid of blackheads	18	11.1%	34.0%
total		162	100.0%	305.7%

a. A value of 1 was used to tabulate the binary groups.

Figure 9 Requirements

Brand preference for cosmetics is more even, with markets in all three regions. One way of understanding is that most of the information comes from friend recommendation, social APP and live broadcast platform, and the purchase method is more online platform shopping, indicating that in addition to interpersonal relationships, the promotion and distribution of cosmetics need to pay attention to the Internet and APP.

$preference frequency

		response number of cases	response percentage	% of cases
$preference[a]	Preference European and American brands	29	30.5%	54.7%
	Prefer Japanese and Korean brands	32	33.7%	60.4%
	Preference for domestic brands	29	30.5%	54.7%
	Preference Other	5	5.3%	9.4%
total		95	100.0%	179.2%

a. A value of 1 was used to tabulate the binary groups.

Figure 10 Regional Preferences

The focus of cosmetics is relatively average in terms of data, reflecting that people will pay attention to all

aspects of cosmetics and need to develop in an all-round way.

$focus frequency

		response		
		number of cases	percentage	% of cases
$key[a]	focus safety	30	23.1%	56.6%
	key price	33	25.4%	62.3%
	key effect	33	25.4%	62.3%
	key brand	16	12.3%	30.2%
	key ingredient	17	13.1%	32.1%
	Focus Other	1	0.8%	1.9%
total		130	100.0%	245.3%

a. A value of 1 was used to tabulate the binary groups.

Figure 11 Focus

It can be seen from the table that more people will focus on color makeup, facial care, facial cleansing and lotion, indicating that people have a greater demand for this.

$type frequency

		response		
		number of cases	percentage	% of cases
$kinda	Type Makeup	21	15.7%	39.6%
	Type Facial Cleansing	34	25.4%	64.2%
	Kind of milk	24	17.9%	45.3%
	Type Sunscreen	3	2.2%	5.7%
	Type Facial	30	22.4%	56.6%
	Type Hand and Foot Care	16	11.9%	30.2%
	Type Other	6	4.5%	11.3%
total		134	100.0%	252.8%

a. A value of 1 was used to tabulate the binary groups.

Figure 12 Choice Preferences

3.4.2 K-means analysis

The data were clustered by SPSS software. By clustering the needs, understanding channels, purchasing channels and purchase types in the questionnaire, the customer groups in the survey can be roughly divided into three categories, as shown in the figure:

final cluster center

	clustering		
	1	2	3
need acne	1	1	0
Anti-aging	0	0	1
need whitening	1	0	1
need freckle	0	0	1
Requires deep cleaning	1	1	0
needs repair	0	0	0
Need to get rid of blackheads	0	1	0
Learn about the way Friends recommend	1	1	1
Learn about the way Social APP	1	1	0
Learn about the way TV commercials	0	0	0
Learn about the way Live platform	1	0	1
Learn about the pathway News & Magazines	0	0	0
Purchase method Online platform shopping	1	1	1
Where to Buy Cosmetics Market	0	0	0
Purchasing Channel Brand Counter	0	0	1
Purchasing way Purchasing	1	0	0
Type Makeup	1	0	0
Type Facial Cleansing	1	1	1
Kind of milk	1	0	0
Type Sunscreen	0	0	0
Type Facial	0	1	1
Type Hand and Foot Care	0	0	1

Figure 13 Final Clustering Results

The first type of customers are whitening and cleaning-oriented, and they learn about products through social APPs and Internet live broadcasts. They focus on brand counters and online shopping, covering a wide range of purchases.

The second type of customers is oriented to anti-acne cleaning, focusing on friend recommendation and online shopping, and most of the purchases are nursing care.

The third type of customers are whitening and freckle-removing oriented, rely less on Internet news, prefer more official channels, prefer offline purchases, and purchase mainly skin care.

4. THE APPLICATION OF USER PORTRAITS IN THE COSMETICS INDUSTRY - PRECISION MARKETING

Precision marketing relies on the advantages of data resources and channel optimization, combined with the marketing communication channels of digital advertising, to deliver advertising content to target groups. The core of precision marketing is to directly target users in need and then provide corresponding products and services. Through this kind of targeted marketing, you can get better traffic conversion rate. After obtaining a certain user portrait information, the enterprise can advertise these groups according to the user portrait.

Through the above survey and data analysis, three types of user portraits of cosmetics have been obtained, and enterprises can formulate precise marketing plans based on the user portraits. The first type of customers is the main group, with a large market capacity, the second type of customers relies more on friend recommendations, and the third type of customers relies on offline publicity and more official channels. From this point of view, enterprises need to do a good job of online and offline publicity at the same time to take care of customers with different needs. The demand orientation of the three types of customer groups is different, and enterprises need to adopt precision marketing according to different needs.

In precision marketing, by analyzing the behavioral characteristics of user groups, it is possible for modern digital marketing. User portraits allow enterprises to understand the characteristic tags of target users from multiple perspectives and levels, so that enterprises can strengthen brand communication and construction.

5. CONCLUSION

This paper takes the portrait of cosmetic users under the background of big data as the research object. Collect data on Weibo through crawler tools, conduct data mining and Analysis on relevant cosmetics users, and establish tag cloud. The questionnaire is designed according to the user label, and then the user portraits of different customers are constructed through the analysis of the questionnaire data. This can accurately describe the

potential needs of users in more dimensions and carry out precision marketing, which is of great significance to the future development of enterprises.

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