



# Research on Marketing Strategies Based on Customer Profile Construction in the Era of Big Data

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DOI: 10.32629/memf.v5i6.3176

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**Abstract:** With the development of digitalization and science and technology, big data has gradually become an important driving force for business decision-making, especially in the field of marketing. In the era of big data, enterprises are facing massive amounts of user data, and how to effectively utilize this data for precision marketing has become an important issue. This article conducts research on marketing strategies based on customer profiling, exploring how to construct detailed customer profiles through big data technology and apply them to marketing activities to achieve personalized recommendations and precise targeting. The article first introduces the basic concepts and construction methods of big data and customer profiling, and then elaborates on the implementation steps of marketing strategies based on customer profiling. The effectiveness of this strategy is verified through practical case analysis. By deeply mining and analyzing customer data, enterprises can not only understand customer needs more accurately, but also achieve personalized marketing, thereby improving market competitiveness.

**Keywords:** big data; Customer profile; Marketing strategy; Personalized marketing

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## 1. Introduction

In today's rapidly developing world of globalization and informatization, enterprises are facing unprecedented challenges and opportunities. On the one hand, the popularity of the Internet and artificial intelligence technology has accelerated the speed of information dissemination and broadened the range of consumer choices. At the same time, the traditional marketing model cannot meet the diversified and personalized needs of consumers; On the other hand, the application of big data technology provides unprecedented insights for enterprises, enabling them to stand out in fierce market competition. In many industries, using big data to build customer profiles has become one of the key means for enterprises to gain competitive advantage.

## 2. Definition of the Big Data Era

With the development of Internet, Internet of Things, mobile communication and other technologies, the amount of data is growing rapidly, data types are becoming increasingly rich, and data applications are increasingly widespread. Data has become an important resource to promote social and economic development. In this era, the scale, variety, and processing speed of data far exceed the capabilities of traditional data processing techniques, therefore new technologies and methods are needed to manage and utilize this data. Big data includes characteristics such as large data volume, diverse data types, and fast processing speed. The arrival of the big data era makes data-driven decision-making possible. Enterprises can use big data analysis to optimize business processes, improve work efficiency, develop new products, predict market trends, and more. Meanwhile, big data has also brought new challenges such as data security, privacy protection, and data governance.

## 3. Definition of Customer Profile

User profiling is a comprehensive concept that establishes a characterization model for customers or users by collecting and analyzing various user data, including basic information, behavioral characteristics, psychological characteristics, social characteristics, and so on. In order to accurately analyze and predict customer needs, and achieve the goal of formulating targeted and reasonable strategies in marketing and sales processes. User profiling is an important tool in digital marketing, which can help marketers better understand users' needs, preferences, and behaviors, thereby providing more accurate advertising placement, personalized recommendations, user lifecycle management, and marketing strategy optimization services. With the development of Internet technology, consumer behavior has become more complex and changeable. How to find target users in massive information has become the key to the successful implementation of marketing strategies.

This article delves into the application of user profiling in marketing strategies, in order to develop targeted and appropriate strategies for marketing and sales. On the one hand, in marketing and promotion, through in-depth analysis of user profiles, enterprises can quickly understand the interests, consumption habits, lifestyle, etc. of target customers, and predict future consumption trends, providing strong support for enterprise decision-making. On the other hand, big data based user profile analysis also plays an important role in product research and development, market new product promotion, after-sales service, and many other aspects. However, in the process of using user profiles, it is also necessary to pay attention to data security and user privacy protection, ensuring that all operations comply with legal and regulatory requirements.

## **4. User Profile Construction Method**

### **4.1 Data acquisition**

Collecting user data from multiple channels, mainly divided into internal and external channels.

Internal channels: Enterprise free data such as basic information of transactional customers, transaction records, after-sales evaluations, etc.

External channels: Third parties, partners, agency companies, public data sources, social media data. At the same time, users' browsing information can be obtained through Internet crawler technology.

### **4.2 Data preprocessing**

Data collected by data preprocessing needs to be cleaned and integrated to eliminate duplicate, invalid and erroneous data. Data cleaning includes removal of outliers, handling of missing data, etc. The data from different sources are then unified and integrated to form a complete data set. Duplicate and erroneous data information is removed and the standardized type and consistency of the data is maintained to achieve the effect of preprocessing.

### **4.3 Data analysis**

Statistical analysis, machine learning and other technologies are used to process the collected data and distill valuable information. Enterprises need to conduct in-depth analysis of the cleaned and integrated data, including the use of data mining and machine learning algorithms to identify customers' purchasing preferences, interests, and consumption habits. Through data analysis, enterprises can build a detailed customer profile, including customers' behavioral characteristics, psychological characteristics and social characteristics.

### **4.4 Customer Profile Construction**

The analysis results are transformed into specific user labels to build a multi-dimensional customer portrait. Using the portrait model, enterprises can accurately understand and even predict customer needs, and can better understand the needs and pain points of different user groups, thus guiding the design and optimization of products and providing an important basis for marketing decisions.

#### **4.4.1 Clustering**

Through the analysis method of clustering, users are divided into different groups, and groups with similar characteristics are grouped together, which can help enterprises identify segments or even discover more segments that have never been noticed, and users in these segments may have specific needs or preferences, and enterprises can meet their needs through targeted marketing strategies. Meanwhile, through clustering analysis, users can be divided into different stages of the life cycle, such as the introduction period - new users, the maturity period - active users, and the decline period - the imminent loss of customers, and enterprises can take different marketing programs in different life cycle stages.

#### **4.4.2 Anticipation**

Machine learning algorithms are used to predict consumer behavior, such as purchase intention, whether to repurchase, and the risk of customer churn.

Based on the results of data analysis, companies can build a detailed customer portrait. A customer portrait is a comprehensive description of customer characteristics, including basic information, purchase preferences, interests, etc. By analyzing customer profiles, enterprises can more accurately grasp customer needs, front-load measures, and provide a basis for the subsequent development of precise marketing strategies.

## **5. Precision marketing strategy based on customer profiling**

### **5.1 Personalized Recommendation**

According to the customer's basic information, shopping history, browsing behavior and other data, recommending the

goods or services that the customer is interested in or needs to buy, to improve the purchase conversion rate. Recommendation algorithms are usually available:

Content-based recommendation: by analyzing the characteristics of the content that the user liked in the past, new content with similar characteristics is recommended to the user.

Collaborative filtering recommendation: find other user groups with similar preferences to the target user and make recommendations for the user based on the behavior of these groups.

Matrix Decomposition: Mathematically decompose the user-item rating matrix into two low-rank matrices, so as to discover the user preferences and item characteristics hidden behind the data.

Deep learning models: deep learning techniques such as neural networks are utilized to deal with complex non-linear relationships and improve the performance of recommendation systems. For example, using convolutional neural network (CNN) to process image data, or using recurrent neural network (RNN) to process sequence data.

## 5.2 Precision Ad Placement

Precise advertisement placement is an advertising strategy that precisely pushes advertisement content to the target audience through data mining and analysis and user behavior tracking technology. It mainly uses information such as geographic location, commonly-used social media, and consumption ability in the customer profile to select appropriate advertisement placement channels and time, reduce ineffective exposure, and achieve precise reach, thus bringing a higher ROI to the enterprise.

## 5.3 Customer Relationship Management

Classifying customers into different groups according to their characteristics and behaviors, the enterprise develops different promotional strategies and carries out targeted relationship marketing. For example, for high net worth target customers, exclusive discounts and coupons can be provided; for new customers, first-time purchase promotions can be launched; for active customers, points redemption or membership privileges can be provided. Through targeted promotions, companies can attract more customers and increase sales. By analyzing customer feedback and interaction data, service strategies can be adjusted in time to improve customer satisfaction and loyalty.

## 5.4 Emotional Marketing

Based on customers' emotional needs and preferences, plan more in-depth brand stories or marketing activities to establish emotional links between products and consumers and deepen brand image.

## 5.5 Market Analysis

Through the customer profile model, to achieve the market forecast, the direction of commodity prices, consumer psychology and behavioral changes, etc., from data collection to market analysis to strategy development, each step needs to be carefully planned and executed to ensure the final results and benefits.

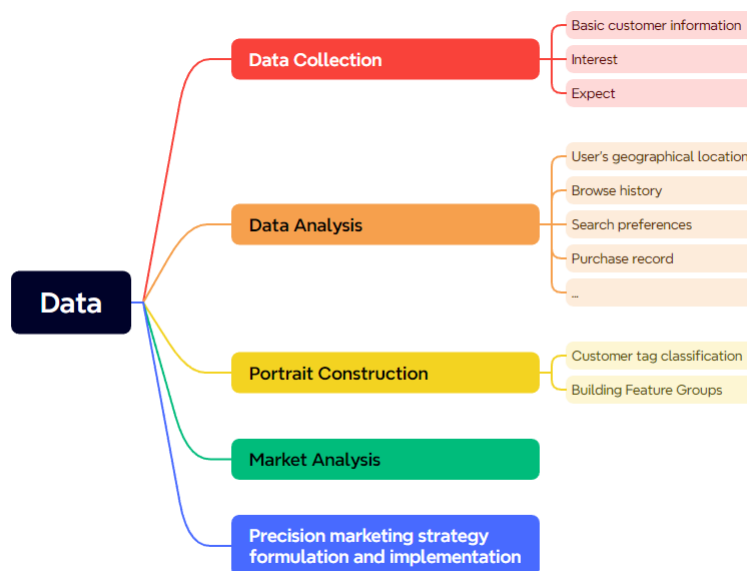


Figure 1. Basic steps for building user profiles

## 6. Case Study - Example of LF's Project S

### 6.1 Company Introduction

LF Company, a company with state-owned background, with real estate development and property management as its main business, has continuously ranked among the top 100 real estate companies in China, with a total of nine property projects in Chongqing, China, and the best performing property in terms of sales volume is the S project, which is based on the analysis of the marketing strategy of the S project in this case.

### 6.2 Current situation of real estate marketing

China's real estate industry has experienced rapid development in the past, and is currently facing many challenges. 2022, the national real estate market sales grew rapidly, but after entering 2023, the market began to adjust. 2023, in August, the area of new residential property transactions in the country's 100 cities fell by 27% compared to the same period last year, and during the first half of the year, the national sales of newly constructed commodities dropped by 19% and 25% year-on-year, respectively, see Figure 1 for details, showing a sharp decline in market demand. Continuous economic growth and the increasing improvement of people's living standards have strengthened consumers' individualized and high-quality demand for real estate commodities. With the surge of the digital wave, the traditional marketing model can no longer meet the needs of the industry as well as the needs of consumers, and the real estate industry is experiencing a profound transformation of the marketing model. This transformation is not only related to the updating of marketing means, but also implies the adjustment of corporate strategic thinking. In this paper, the marketing status quo of the S project of LF Real Estate Company is analyzed, focusing on the marketing initiatives based on customer image construction of the project in the context of digitization, and the results achieved. The project is located in the center of Chongqing city, positioned as a high-end residential project, targeting high-net-worth people.

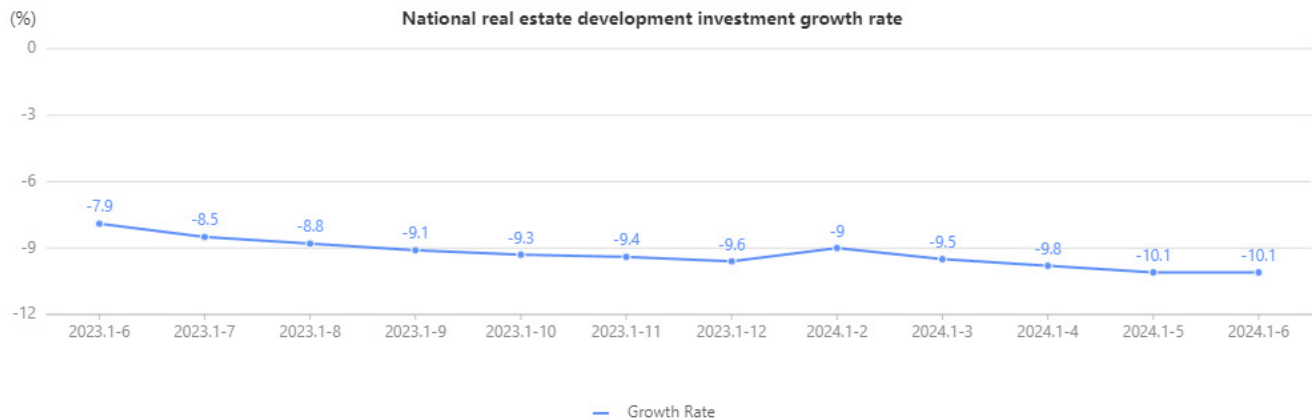


Figure 2. Nation realestate development investment growth rate

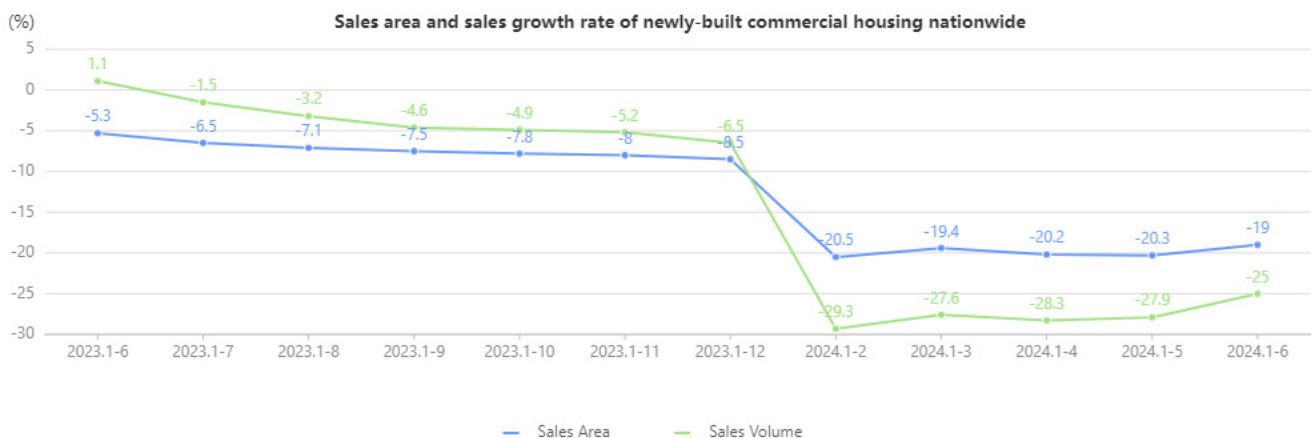


Figure 3. Sales area and sales growth rate of newly-built commercial housing nationwide

## **6.3 Implementation of marketing strategy based on portrait construction for Project S**

### **6.3.1 Personalized Recommendation**

S project collects customer information through the following channels: daily sales department visit customer information, ERP system transaction customer information, AI cloud store browsing records, live broadcast customer information, according to the above information to portray the customer's age, income and geographic location model, the recommendation algorithm analyzes the online customer's purchasing preferences and interests, and pushes to the customer to meet the customer's purchasing needs of the housing commodity information, online visit conversion rate increased by 1%.

### **6.3.2 Precise Advertisement Placement**

After data analysis, the media that the target group of the project pays attention to are concentrated in Soufun, Housing World, Hualong.com, etc., and the government, institutions, and employees of state and central enterprises are the main ones, so the project is more targeted to advertise in key media, and it will also go to the key units offline to carry out centralized publicity to reasonably allocate the advertisement budget to save marketing costs and improve the efficiency of publicity at the same time. At the same time, through customer profiling, it was found that groups of people consider their children's education and tend to buy projects that enjoy better educational support resources in the neighborhood. In order to match this type of customer, Project S highlights the information of nearby famous school support in its publicity for this target group.

### **6.3.3 Market Segmentation**

The project's industry is mainly categorized into townhouses, stacked and single-family villas. Through transaction analysis and market research, according to the classification and characterization of the customer groups of the property, there are mainly three categories of customers who purchase new houses.

The first category is just change the crowd, the purpose of buying the project is to improve the housing and living environment, the purchase of the crowd is also mainly concentrated in the project around the customer groups, the region has a strong sense of belonging to the region, most of the region's aboriginal people, this type of customer target industry for the house, the purchase of the budget of 1 million - 1.8 million, the customer accounted for 40% of the project's pricing of the house price of 11,000 - 13,000 / m<sup>2</sup>, the sale of the house is between 1.5 million and 1.8 million, the customer accounts for 40% of the project. 13,000 / square meters, the highest rate of demobilization.

The second category is the young people to buy a wedding house, mainly for the newlyweds, mainly concentrated in the age of 20-35 years old, this type of customer's target mode is stacked, the total purchase budget of 1.8-2.5 million, stacked due to the area is larger, the total price is relatively high, the pricing is slightly lower than the house, concentrated in the 11,000-12,000 / m<sup>2</sup>, to match the second category of customer demand, the rate of realization is second to the house.

The third category is the economic foundation and social status of the elderly, the purchase of new homes to health-oriented, valuing the project's surrounding natural environment, the pursuit of comfort, the surrounding malls and other ancillary facilities do not have a greater demand. This type of customers have a certain economic strength, price sensitivity is not high, the purchase of housing budget between 3-5 million. Matching this type of target group, the pricing of single-family houses is between 15,000-180,000/m<sup>2</sup>.

S project marketing team used the formed customer portrait, market segmentation, the pricing of the corresponding housing commodities to match the needs of the segmented market groups, to achieve an increase in the rate of dissolution, at the same time in the segmentation of the market found never noticed in the segmented market, unmarried single women, aged 28-35 years old, mainly, this type of group is also the potential target customers of the S project, accounting for 2%, according to this segmentation of the market, the S project According to this market segment, Project S has increased its customer development and strengthened its marketing efforts to help improve marketing performance.

### **6.3.4 Emotional Marketing**

Through data analysis, Project S found that the target customer group is mainly middle- and high-income families aged 30-60, which have a higher social status and higher requirements for the community environment and property services. The project's marketing planning activities are mostly based on organizing high-end customer salons, exchanges of non-traditional cultural heritage, yoga and health, inviting famous designers and entrepreneurs to share their experiences and other activities to increase the attention and participation of target customers; at the same time, the property also provides customers with exclusive real estate consultants and customized home-buying services. Regular and organized car clubs of famous car companies such as Ferrari cars and Porsche to maintain the neighborhood relationship. By telling the story behind the brand, the values and concepts of the company are conveyed, enhancing community cohesion and sense of belonging. Establish emotional connection. And focus on community marketing, the possibility of this type of customer group residence is greater, by enhancing the customer buying experience, sharing the customer satisfaction of the home-buying experience

and real feedback, to obtain a sense of trust, and promote customer initiative “old with new” transactions.

## 6.4 Effectiveness Evaluation

After the implementation of the precision marketing strategy, the project evaluates the effect through the change of monthly turnover, customer visit rate, conversion rate, and online cloud store registration rate. The following is the change of turnover after the marketing strategy based on the construction of the customer profile of Project S. January 2024 is the traditional Chinese New Year festival, and during this period, the number of visits and the turnover of each project are on a rising trend. Precise marketing strategy, in February-June 2024, the volume of transactions clearly showed an upward trend, from 7.41 million to 11 million, especially in these months in the real estate off-season, the effect is particularly obvious. At the same time, the project pays attention to customer feedback and trends in real time every month, and continuously optimizes its marketing strategy based on customer profiling and customer behavior to enhance customer satisfaction.

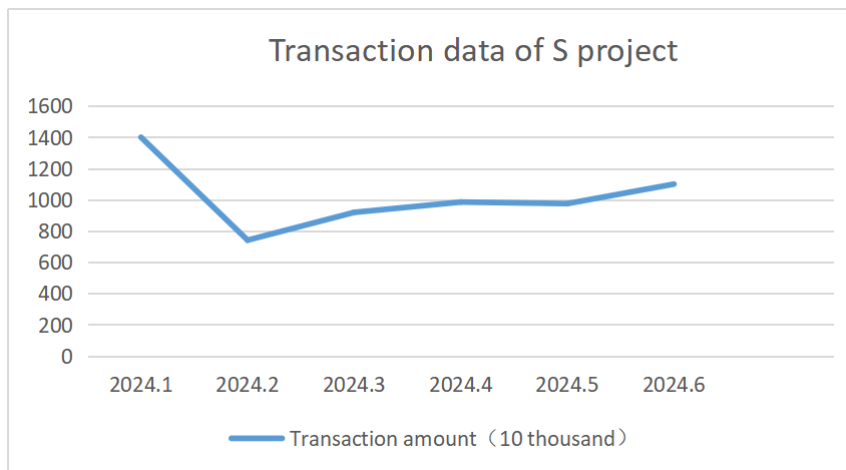


Figure 4. Transaction data of S project in the first half of 2024

## 7. Conclusion

In the context of the big data era, the marketing strategy based on the construction of customer image is gradually becoming the key to the transformation of enterprise marketing mode. This paper reveals the important value of customer portrait in precision marketing by discussing the technology of customer portrait construction and combining it with practical case studies. The study shows that through efficient data collection, processing and analysis, enterprises can more accurately understand the personalized needs and preferences of target customer groups, and thus develop more personalized marketing plans. In addition, dynamically updated customer profiles can also help companies capture market trends, respond quickly to changes in consumer demand, and enhance their market competitiveness and customer satisfaction. However, with the increasing awareness of data security and personal privacy protection, enterprises should also focus on compliance and ethics when using customer profiles for marketing activities to ensure that the business value is maximized under the premise of respecting user privacy. In the future, with the further development of artificial intelligence, cloud computing and other technologies, marketing strategies based on customer profiles will become more intelligent and personalized, creating more growth opportunities for enterprises while bringing richer and more satisfying experiences to consumers.

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