

# Data-driven precision marketing strategy and its effect measurement

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**Abstract.** In today's rapidly developing digital age, data-driven precision marketing strategies have become a powerful tool for enterprises to stand out and gain key competitive advantages in fierce market competition. The beginning of this article elaborates in detail on the significant importance of data-driven precision marketing. In the current era of information explosion, through comprehensive collection, in-depth analysis, and deep mining of massive data, enterprises can gain a comprehensive and multi-dimensional understanding of consumers' specific needs, behavior patterns, and unique preferences. Subsequently, a series of specific precision marketing strategies were discussed in depth, including important strategies such as personalized recommendations, targeted advertising, and customer segmentation. The application of these strategies can greatly improve the targeting and effectiveness of marketing activities, and effectively enhance customer satisfaction and loyalty. At the same time, the article systematically introduces the measurement methods of precision marketing effectiveness, such as the scientific application of key indicators such as conversion rate and customer lifecycle value. Finally, the crucial importance of data security and privacy protection in precision marketing was emphasized. Only by ensuring that businesses conduct marketing activities in a legal and compliant manner can they achieve the grand goal of sustainable development.

**Keywords:** data-driven; Precision marketing; Effect measurement; Personalized recommendation; Customer segmentation.

## 1. Introduction

In the rapidly developing digital age, the rapid progress of information technology has fundamentally changed people's lifestyles and business models[1]. The widespread spread of the Internet has made the dissemination and exchange of information unprecedented and fast, so that we can immediately receive a large amount of information from all over the world. For companies, this is both an opportunity and a challenge[2]. In this highly competitive market environment, companies must constantly innovate and optimize their marketing strategies to achieve success and growth[3].

With the advent of advanced technologies such as big data and artificial intelligence, precise data-based marketing strategies have gradually become the key for companies to gain a competitive advantage[4][5][6]. In an age where data is the heart, the data resources held by companies are like precious treasures[7]. By effectively collecting, analyzing and extracting this data, companies can better understand consumers' inner world, their real needs, behavioural habits and unique preferences[8]. This not only provides a solid foundation for companies to develop more accurate and effective marketing strategies, but also creates opportunities for companies to build closer and deeper relationships with consumers. Therefore, it is crucial to conduct in-depth research on accurate data-based marketing strategies[9][10].

## 2. The importance of data-driven precision marketing

In the digital age, data collection methods and channels are diverse and exciting[11]. For enterprises, their own business systems are undoubtedly an important data tax[12]. For example, a sales management system can collect basic information about customers, including name, contact information, address, etc. A customer relationship management system can record data such as purchase history, transaction data, and interactions with the company. These systems provide



companies with first-hand information about customers, helping them better understand their needs and optimize products and services[13][14][15].

Online platforms and social media also provide businesses with extensive data collection, as Fig.1. Network analysis technology enables companies to extract valuable information from various websites, such as user comments, reviews, etc[16]. Through APIs, companies can interact with social media platforms and collect data on user behavior, such as likes, comments, shares, and social relationship data. By analyzing this data, companies can better understand users' interests, hobbies, and consumption trends, thereby developing more accurate marketing strategies[17].

The company can also choose to collaborate with third-party data providers to access a wider range of data resources[18]. Data providers typically possess vast amounts of industry data, market research, consumer insights, and more. With professional research teams and advanced data collection techniques, they can provide more comprehensive and in-depth data analysis support for businesses[19]. By collaborating with external data providers, organizations can view the market from a higher perspective, grasp industry trends, and lay a solid foundation for their own development decisions[20][21][22].

At the same time, the company can also directly collect customer feedback and feedback through organizing market research, surveys, etc[23]. Market research activities can use a combination of online and offline methods, such as seminars, focus group discussions, etc., to better understand consumer needs and expectations[24]. Research can comprehensively collect consumer opinions and suggestions through online questionnaires, paper questionnaires, and other forms. These directly collected data are very authentic and specific, and can provide valuable references for product development, marketing, and other aspects of business[25][26].



Fig.1.data collection

### 3. Specific precision marketing strategies

#### 3.1. Personalized recommendations

Personalized recommendations are mainly based on the analysis of multidimensional user data, including user behavior data, preferences, and historical transaction data. Through data mining techniques and machine learning algorithms, the system can accurately identify users' interests, purchasing habits, and potential needs[27].

The key implementation methods include joint screening algorithm and content recommendation algorithm[28]. Collaborative filtering algorithms recommend other products or services that similar users like because of their similarity. For example, if User A and User B have similar purchase history and browsing behavior, when User B purchases a specific product, the system may recommend the product to User A. Content recommendation algorithms match and recommend products or services

based on their characteristics and user preferences. For users who enjoy science fiction movies, the system recommends movies with similar tags based on certain labels of science fiction movies, such as "future technology" and "space exploration"[29][30].

Taking Amazon as an example, it has greatly improved users' shopping experience and product sales efficiency through its powerful personal recommendation system[31]. The system recommended by Amazon recommends products to users based on browsing history, purchase history, keywords, and other information. For example, if a user frequently purchases technical books, the system will recommend recently published technical books or related electronic products. At the same time, Amazon provides users with personalized product recommendation lists based on shopping history and browsing behavior, such as "frequently used products you purchased together" and "recommended you", as Tab.1[32].

Tab.1.Amazon model

Recommendation basis	Recommended effect
Browse history	Improve the probability of users discovering related products and increase product exposure.
Purchase record	Recommend products that users may be interested in to increase purchase conversion rates.
Search for keywords	Quickly provide users with relevant product recommendations, saving them search time.

### 3.1. Targeted advertising placement

First, you collect and analyze a large amount of user data, including demographic information (such as age, gender, region, etc.), interests, citizen behavior and other aspects. Based on this, users are divided into different target groups[34][35].

For example, by linking women to fashion and beauty ads and increasing the so-called appeal of ads by focusing on fashion and beauty, electronic product advertising has arrived for technology lovers to meet their demand for the latest technological products. When choosing advertising channels, it is possible to combine the features and user groups of different channels, such as search engine ads, social media ads and video platform ads, to achieve specific goals. This allows social media platforms to advertise based on users' interests and tags. Improve the efficiency of collaboration between advertisers[36].

The effectiveness of targeted advertising investments has been evaluated worldwide on the basis of various indicators. Click through rate (CTR) is an important indicator for displaying advertising miracles. A high ad click rate indicates that the ad content may be interesting to users, while the conversion rate (CVR) is the ratio between the ad click rate and the actual purchase or promotion, which reflects the effectiveness of the ad. In addition, display is an important indicator for the usability of advertising, as Tab.2.

Tab.2.Evaluation of advertising effectiveness

Evaluation indicators	Meaning of indicators
Click through rate (CTR)	The ratio of the number of clicks on an advertisement to the number of ad impressions
Conversion rate (CVR)	The proportion from ad clicks to actual purchases or actions
Exposure level	The number of times the advertisement is displayed

In addition, A/B testing can be used to compare different political effects in discussion, by establishing different ad placement groups, applying different positioning strategies, comparing different indicators such as click groups and conversion rates, and determining the best positioning strategy. Continuous optimization of ad placement plans to improve the efficiency and profitability of ad placement[37].

### 3.2. Customer Segmentation

Customer segmentation can be based on multiple criteria. Common criteria include demographic factors, behavioral factors, psychological factors, etc., as Fig.2. Demographic factors such as age, gender, income, occupation, etc. Users of different age groups may have different consumption needs and preferences, for example, young people may be more inclined towards fashion and technology products, while middle-aged and elderly people may be more concerned about health and wellness products. Gender differences can also lead to different consumer preferences, as men and women often have different considerations when purchasing goods. Income and occupation can also affect users' purchasing power and consumption behavior. Behavioral factors include purchase frequency, purchase amount, purchase channel, etc. Users with high purchase frequency may be loyal users of the brand, and marketing strategies such as membership programs and exclusive discounts can be launched for them. Users with large purchase amounts may have higher requirements for quality and service, and can be provided with high-end customized products or services. The choice of purchasing channels also reflects users' consumption habits, for example, users who prefer online shopping and users who prefer offline shopping may need different marketing methods. Psychological factors such as lifestyle, values, interests, and hobbies. Users with different lifestyles and values will also have different demands for products or services. For example, environmentally conscious users may be more inclined to purchase eco-friendly products, while fashion conscious users may be more concerned about the brand's fashionability and trendiness. Interests and hobbies are also important criteria for customer segmentation, for example, users who enjoy sports may have needs for sports equipment, fitness courses, etc.

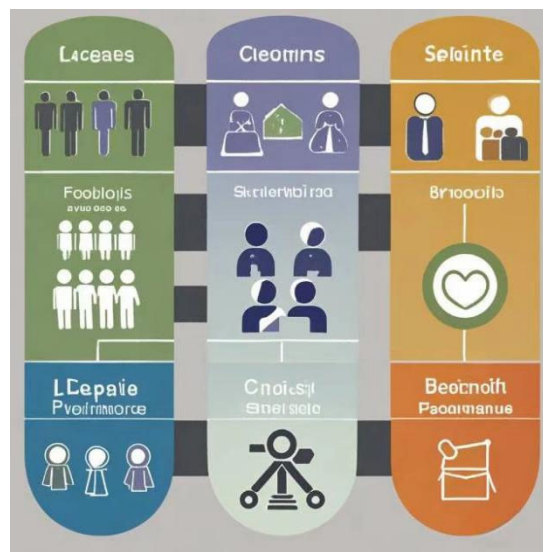


Fig.2. Standards for customer segmentation

The segmentation methods mainly include clustering analysis, decision tree analysis, etc. Cluster analysis categorizes customers with similar characteristics into one group in order to develop marketing strategies for different groups. For example, through cluster analysis, users can be divided into different groups such as high-value users, potential users, and price sensitive users. Decision tree analysis subdivides customers through a series of rules and conditions, such as constructing decision trees based on factors such as age, income, and purchasing behavior, and dividing users into different segmented groups.

For high-value customer groups, exclusive promotional activities, high-quality customer service, and customized products or services can be provided to increase their loyalty and satisfaction. For example, providing VIP service channels, priority experience of new products, and other privileges for high-value customers. For potential customer groups, educational content marketing, trial activities, and other methods can be used to attract them to try products or services. For example, creating video tutorials on product usage and advantages, or providing free trial packs to help

potential customers better understand the product. For price sensitive customer groups, discount activities, promotional packages, etc. can be launched to meet their demand for cost-effectiveness. For example, launching limited time discount activities during specific holidays or offering combination packages to reduce product unit prices.

#### 4. Conclusions

Data-driven precision marketing boasts multiple advantages. It enables accurate customer targeting, thus avoiding blind marketing and enhancing marketing efficiency and return on investment. Additionally, it allows for the provision of personalized experiences, fulfilling customer needs and boosting satisfaction and loyalty. By utilizing data indicators, marketing effectiveness can be accurately evaluated, and strategies can be adjusted in a timely manner. Moreover, it can also heighten the market competitiveness of enterprises.

In the future, data-driven precision marketing will continue to play an important role. Technological advancements will enhance data collection and analysis capabilities, making marketing more intelligent and automated. Enterprises need to pay attention to data security and privacy protection to win customer trust. Cross channel integrated marketing will become a trend, and enterprises need to integrate online and offline channels to provide a consistent marketing experience.

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