

Research Article

Accurate Marketing Algorithm of Network Video Based on User Big Data Analysis

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Due to the continuous progress of the era of mega data, it is more and more important to carry out accurate marketing of online video. Based on the analysis of users' big data, this paper proposes and implements an online video precision marketing algorithm, which provides a reference for the precision marketing strategy of video websites. This paper introduces the concept and characteristics of precision marketing and analyzes the application forms of precision marketing of video websites. It also summarizes the operation system, operation mode of precision marketing, and the influence of online video advertising on enterprises and users. In order to realize the accurate marketing of big data, it needs to be carried out from three parts: data collection, data analysis, and marketing plan formulation and implementation. Through continuously collecting customer data, it gradually and clearly acquires the characteristics of customers and constantly dynamically adjusts the marketing strategy to customers, so as to accurately conduct video marketing to customers and greatly improve the marketing efficiency. In order to test the effectiveness of the marketing algorithm in this paper, we conducted an experiment. The research in this paper has important practical value and reference significance for reducing the cost of video advertising of enterprises and improving the communication effect of online video advertising.

1. Introduction

In recent years, the continuous progress of the Internet has had a profound impact on human beings [1]. No matter the application of digital technology or its spreading influence, it has greatly promoted the progress of global economy in the past decade, and it has undergone unimaginable changes [2]. The era of Internet is characterized by “cloud” as the foundation, carrier, and “data” accumulation and driving, which reflects that it can be changed according to different users anytime and anywhere [3]. The arrival of the era of mega data indicates that the Internet economy is increasingly tapping opportunities with the help of huge database, and, at this time, social media is also beginning to develop rapidly with huge user resources and sufficient channels [4]. In this environment, how to collect and integrate data more deeply and how to properly apply the results of data analysis to commercial marketing activities have become a new

proposition to be solved urgently in various industries. With the wide application of various mobile intelligent terminal devices, it has a close connection with people's lives. By collecting and analyzing the data on the mobile intelligent devices, we can get the consumption information and characteristics of users, which makes it possible to carry out accurate network marketing [5]. In the era of big data, the channels of marketing communication have shown explosive expansion [6]. Faced with massive information, consumers are more willing to spend their time and energy on information and products closely related to themselves [7]. Through the data analysis of precision marketing cases, we can see that enterprises are more willing to change from wasteful mass marketing to precision marketing designed based on building strong customer relationships [8]. The basis of accurate marketing of big data is that it needs a huge database and user data of various dimensions related to users, which can be effectively cleaned, integrated, mined,

and modeled and can be applied to daily enterprise marketing activities [9]. Through precise marketing and big data analysis, it can help enterprises to accurately lock the target users and provide users with products or services that can more accurately meet their needs, thus achieving the marketing objectives of enterprises [10]. Therefore, enterprises should pay attention to network promotion, strengthen the application of mega data technology, continuously improve the accuracy of network marketing, and provide help for the continuous development of enterprises [11]. This paper studies the precision marketing of online video. Its innovations are as follows:

- (i) This paper studies the precision marketing from the innovative perspective of users' big data analysis and online video, making use of all links with content production, video marketing, and communication to improve the coverage of media, the degree of communication, and the precision of marketing, so as to achieve the purpose of precision marketing.
- (ii) In terms of user data, this paper opens up the serial data identification of anonymous users and real-name users, which can effectively identify all browsing behaviors of users on the Internet and collect data of users' decision-making behaviors more comprehensively. Through data analysis, we can gain insight into the individual needs of users and accurately deliver marketing information to users.

Firstly, this paper sorts out the purpose and significance of the research, including the research summary of precision marketing under the background of megadata era. At the same time, it actively explores the new changes of online advertising marketing methods, comprehensively classifies and analyzes the related basic theories, characteristics, and advantages of precision marketing, and summarizes the realization methods and effect evaluation of mobile online video precision marketing. Then it analyzes the development status of the big data era and its influence on online video marketing. Finally, the realization of precise marketing algorithm based on user big data analysis is studied. Combined with big data, network marketing, customer relationship management, and other related technologies and knowledge, this paper constructs the process of network video precision marketing under the background of mega data and puts forward corresponding suggestions according to the reality, which can provide reference for enterprises to implement network video precision marketing. Experiments verify the superior performance of this algorithm, which can realize the accurate marketing of online video. The research in this paper has certain practical significance.

2. Related Work

Yin et al. emphasized that enterprises can better optimize the relationship between enterprises and customers by combining rational data and perceptual thinking through the sharing and integration of network database resources [12]. Sun et al. summarized the three steps for big data to help

precision marketing: insight into demand, precise delivery, and service assistance, emphasizing the core thinking of "beginning with customers and ending with customers" [13]. Li et al. proposed that enterprises can comprehensively and deeply mine consumers' hobbies and behaviors through big data processing technology, so as to accurately predict changes in customer needs and deepen the dynamics of precision marketing [14]. Vukoti et al. analyzed the current status of social media marketing, including an overview of social media marketing methods and existing problems and trends, and discussed specific strategies for social media marketing in the era of megadata [15]. In terms of user identification, Cheng et al. established rich user portrait data through the analysis and mining of user data. It can effectively identify users from 360 degrees, and the marketing to users is more accurate and the marketing effect is better [16]. Khan et al. pointed out that, in the era of megadata, although enterprises have massive data, not all data information is valuable, and many data are only redundant, resulting in its value density being inversely proportional to its quantity [17]. Wu et al. believed that enterprises must be customer-centric and make use of "big data" resources in order to better implement and optimize online precision marketing [18]. Su et al. pointed out that, in order to promote the continuous development of online precision marketing under the background of megadata, it is necessary to send corresponding product advertisements according to the environment where consumers are located, so that consumers have more independent choices for advertisements, and improve the effectiveness of online marketing advertising promotion. It is necessary to improve the accuracy of the market positioning of network marketing products [19]. Gupta and others believe that precision marketing is based on precise positioning, relying on information technology to establish a personalized customer communication service system, a marketing communication plan that focuses on results and actions, and achieves more accurate, measurable, and high return on investment [20]. Huang et al. discussed the profit model of video websites, combined with the theory of precision marketing, and proposed a method for formulating strategies for implementing precision marketing. It also has utility for other video sites [21]. Chen et al. took a website as an example, through in-depth analysis of its development status, current opportunities, and challenges in the era of megadata, combined with the formulation of the website's existing marketing strategies, to explore its future development direction and construct a marketing system and marketing strategy with guiding significance in the era of online media big data [22].

Based on the in-depth study of related literature, this paper takes the progress of big data and online video as the background and starting point, summarizes and analyzes the continuous progress of big data and the influence, opportunities, and challenges faced by online video, takes the corresponding marketing theory and development as the research theoretical basis, and summarizes the relevant marketing strategy combinations. It also explores the potential opportunities and inherent potentials of the progress

of online video precision marketing in the era of megadata and summarizes the innovative marketing system and marketing model. This paper also analyzes and studies the key technologies used in network precision marketing and puts forward the network video precision marketing algorithm based on user big data analysis. The application of this algorithm in the network video precision marketing scene can obtain all kinds of customer data, thus more effectively discovering potential users and bringing new ideas and new kinetic energy to the progress of the industry.

3. Methodology

3.1. Operation System and Mode of Precision Marketing. Due to the continuous progress of IT, a large amount of user data is produced in all walks of life, and these data packets contain a lot of information [23]. How to better screen and use information has become the focus of the era of megadata, and the precision marketing that came into being has become the secret weapon to win this war. The nature of precision marketing determines the improvement of total customer value. Precision marketing can not only meet the initial needs of customers but also meet the individual needs of customers through one-to-one marketing. The characteristics of precision marketing are as follows: ① relevance, ② having measurable and accurate system guarantee and means, ③ sustainable development with low cost being able to be carried out, ④ precision marketing being based on the target market that can accurately distinguish and ensure effective market description and product brand positioning, and ⑤ precision marketing being an integrated sales method suitable for one-to-one distribution.

The other part is the real-name data of users on the Internet. Big data pursues the analysis of all data. Because of the huge amount of data to be studied and analyzed, it no longer pursues accuracy. This seems to be contrary to the requirement of precision marketing, but it is not [24]. Big data requires a huge amount of data. Precision marketing does not pursue absolute precision but pays more attention to grasping the general development direction of things. Precision marketing is based on accurate segmentation and positioning of users, finding out users' needs, and recommending products to the right users in the right way at the right time to achieve accurate, low-cost, and effective results. After processing the collected data and information, the platform can roughly grasp the basic personal situation of users and roughly judge the basic needs and economic strength of users according to their interest topics and behavior preferences, so as to accurately locate users and provide corresponding advertising services. Figure 1 is the flow chart of network precision marketing.

Compared with database marketing, which relies on hand database, Internet-based precision marketing relies on the Internet to identify customers' psychology and characteristics and then carries out marketing according to these data. Precision marketing focuses on personalized persuasiveness and information relevance. Through precise marketing, enterprises personalize the content and methods for customers, so as to connect enterprises with customer needs.

The implementation of precise marketing strategy can be improved by means of communication, thus improving the efficiency [25]. In the context of precision marketing, the communication between marketers and customers is direct, which shortens the distance, thus enabling enterprises to establish quick-response customer centers, which is particularly important for the long-term development of enterprises. The core of precision marketing is to deliver accurate and measurable marketing information. If the information delivered is valuable, it is required that this information be closely related to the audience, because only the relevance is valuable and effective. At present, Internet-based precision marketing methods mainly include ① portal advertisement, ② keyword search advertisement, ③ blog, ④ e-mail advertisement, and ⑤ incoming advertisement.

The premise of accurate marketing is that enterprises need to master more accurate customer information. After establishing the corresponding database, users' images fed back from the database can be used to segment the market. The application of megadata enables marketers to attach importance to the interaction with target consumers in order to adjust marketing strategies in time. From the perspective of the whole marketing activities, the use of precision marketing highlights the user value, refines the marketers' cognition of user psychology and consumer behavior, and deepens the marketing concept of "people-centered" and marketing activities based on user experience, which can effectively stimulate consumption [26]. Accurate marketing means standing on the benchmark of consumer demand, digging deeply, and fully satisfying users' real inner needs and desires, rather than simple correlation and advertising push based on data analysis. Accurate positioning of consumers can make users more likely to accept marketing information, and it is more likely to guide target consumers to produce purchasing behavior, so that marketing activities can achieve better results. Based on the concept of precision marketing, enterprises need to establish higher-quality marketing communication in the operation process. High quality refers to three aspects, namely, more accurate user portrait, measurable return on investment, and traceable marketing effect. Operating system generally includes ① clear target market, ② clear and unique market positioning, ③ efficient customer communication system, ④ channel system suitable for niche distribution, and ⑤ customer value-added service system. The accurate marketing of video websites is based on the analysis of users' information and behaviors. As users, their behaviors on video websites can be divided into three aspects: searching, browsing, and interacting. Therefore, video websites also plan accurate marketing activities according to these three user behaviors.

3.2. Status and Development of Big Data Era and Its Influence on Online Video Marketing. With the rapid development of Internet technology, the Internet has had a significant impact on all walks of life. Due to the continuous progress of the era of megadata, information explodes, information is requested anytime and anywhere, and the amount of information generated and acquired by people has shown a

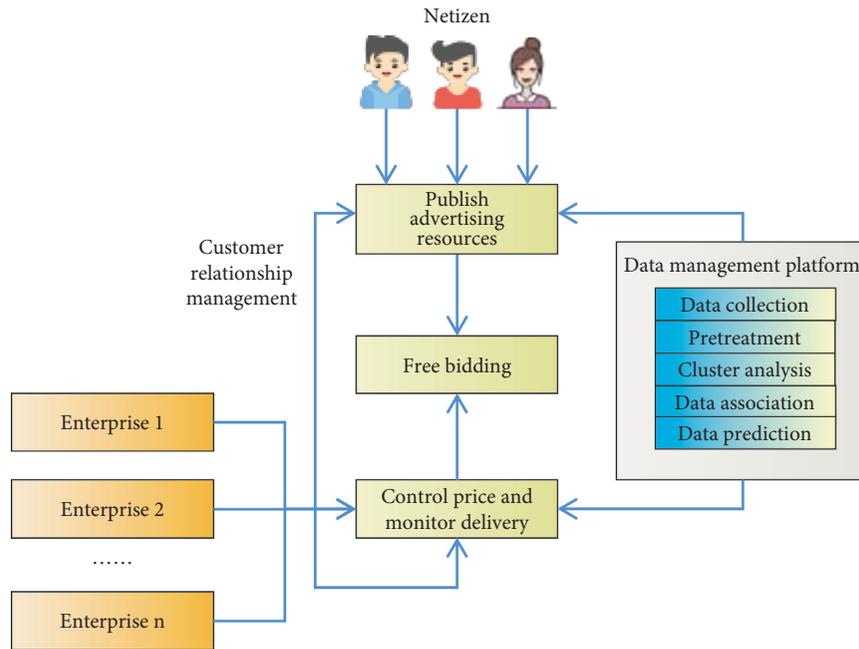


FIGURE 1: Flow chart of network precision marketing.

series-level growth. In particular, with the wide application, popularization, and development of digital media and smart devices, people have not only produced massive data in production and life. How to use these data to better promote people's life and production has also become a hot topic. Big data is a huge collection of data that is difficult to collect, analyze, and mine in a short time by mainstream software tools.

With the deepening of big data knowledge and technology, enterprises can process data in a more efficient and reliable way, which brings a new thinking-precision marketing to network marketing. Big data precision marketing is also called data-driven marketing. The core idea of using big data analysis for precise marketing is to match "people, goods, and markets." It guides consumers to actively participate in it and is committed to establishing one-to-one product marketing mode, giving full play to the advantages of big data mining technology, collecting external information resources of enterprises, and combining with the huge data information owned by itself, through analysis, providing help for enterprises to formulate long-term marketing strategies. The precision marketing service platform based on big data analysis is shown in Figure 2.

Different from traditional network marketing, network precision marketing under the background of megadata emphasizes the accuracy of market positioning. Specifically, the precision marketing of big data mainly covers three parts: ① data collection part, ② data analysis part, and ③ marketing plan implementation part. Accurate marketing of big data requires enterprises to understand, analyze, and predict the consumption behaviors of different consumers more comprehensively and deeply with the help of various information technologies and network platforms, so as to find out the target market, make effective positioning, and continuously track and optimize the relevant data system to

improve the accuracy of enterprise market positioning. The change of consumers' ideas and behaviors also prompted brand merchants to adjust their delivery strategies. The Internet has become the new favorite of marketing and promotion activities, even leapt to the traditional media, such as TV and newspapers, and became the most popular promotion channel for brand merchants.

Advertising, as the most basic business model of the Internet, has become more efficient, but this efficient advantage has gradually become insignificant under the impact of the mobile Internet. Traditional video network marketing is based on enterprises, and more well-known and widely viewed video websites are selected as the target of advertising, but the cost is high and the effect is not satisfactory. It pays attention to customer value and better grasps the real demands of consumers by tracking and analyzing the structured, semistructured, and unstructured consumption data of customers, so as to provide them with more personalized marketing services. There are two forms of online video advertising: video advertising on web pages and video advertising on online video streaming media. The video website industry uses data for precision marketing. Compared with traditional marketing methods, precision marketing improves the marketing efficiency from the production of video content to the promotion and then to the broadcast. Online video advertising is an online video booth that integrates traditional video advertising into the network by using advanced digital technology and can be used by enterprises to live online. This is actually a very representative form of rich media advertising.

Social resources are limited, but the phenomenon of resource waste is everywhere. In this regard, online video precision marketing in the era of megadata emphasizes the coordination of resources. Accurate prediction of user

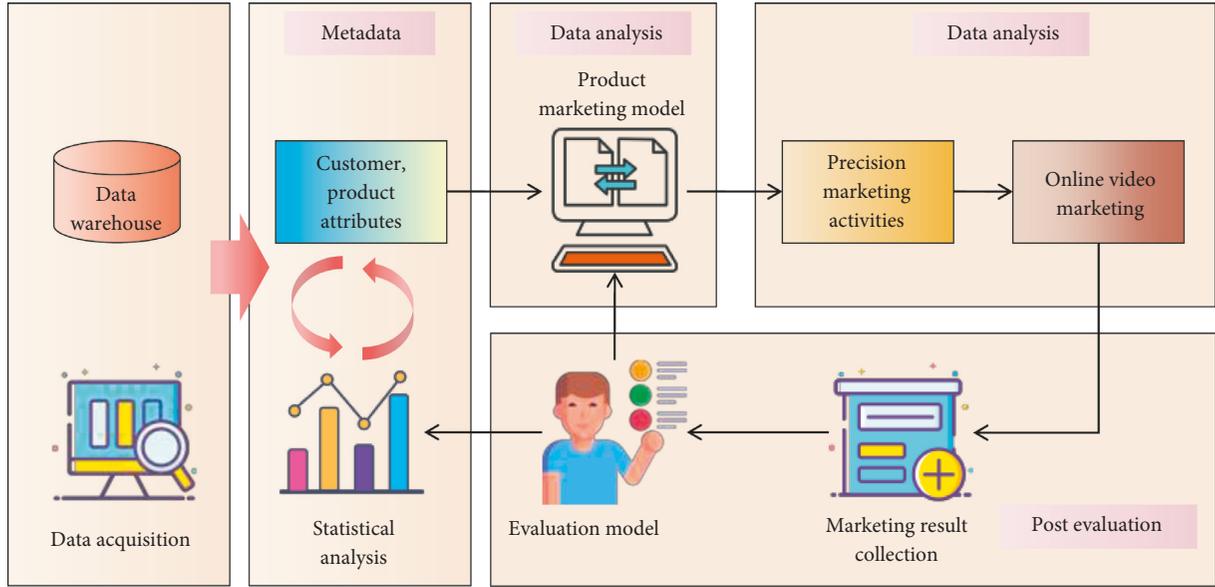


FIGURE 2: Precision marketing service platform based on big data analysis.

demand can help enterprises to produce and market more efficiently. Therefore, big data can be transformed into the source of enterprise economic value. In the big data environment, through the establishment of an open virtual data platform, data, information, and other resources of all parties can be integrated to realize exchange of needed goods, reduce transaction costs, and optimize transaction process. Associated enterprises can share customer data resources, formulate matching network precise marketing strategy combination, optimize resource allocation, and achieve win-win goals. The application of accurate video marketing on websites will make users integrate multiple identities and become producers, disseminators, and consumers of video content.

3.3. Realization of Precise Marketing Based on User Big Data Analysis. The essence of big data is to find the laws, reasons, trends, and so forth reflected behind the data and to find the known number with unknown numbers. The core goal of data analysis is to get customers' needs based on the analysis application of megadata and, at the same time, give customers a feeling of being valued and satisfied and generate benign interaction. At present, there are mainly two mainstream ways to collect, analyze, and process customer data: ① get corresponding technical support and data services with the help of specialized "big data" service companies and ② establish a corresponding data platform for data collection and analysis.

Collect basic data information on the Internet and build a consumer database. In this stage, we should try our best to ensure that the obtained consumer information has good comprehensiveness. Therefore, in the process of information collection, we should use various ways and different ways to collect information. According to the analysis of product sales history information, the characteristics of

target customers are analyzed, and the customer-product marketing model, product-product cross-marketing model, and so on are constructed through the mapping of customer metadata, so as to realize the precise marketing of products to customers and improve the marketing efficiency.

Because it is difficult to directly extract the multimedia features of the network video and the content is numerous, the variety is numerous, the video quality is uneven, and so forth, it is impossible to directly classify the theme of the network video by using the traditional artificial film classification method. In this paper, the correlation degree between user u and video i is defined as

$$\text{preference}(u, i) = p_u^T q_i = \sum_{k=1}^K P_{u,k} q_{k,i}. \quad (1)$$

In the above equation, $P_{u,k}$ and $q_{k,i}$ are parameters in the latent semantic model, $P_{u,k}$ measures the relationship between user u and the k -th latent feature, and $q_{k,i}$ measures the relationship between the k -th latent feature and item i ; P_u is composed of $P_{u,k}$; q_i is an item-latent feature association vector composed of $q_{k,i}$. The latent semantic model evaluates the relationship between user u and item i through P_u and q_i .

For a virtual rating matrix M , let all rating items in it form a set:

$$R = \{(u, i, r_{ui})\}. \quad (2)$$

In the above equation, r_{ui} is the virtual rating of video i by user u . In order to obtain the specific parameters of the latent semantic model in equation (1), it is necessary to use the scoring set in R to learn the latent semantic model. To this end, the loss function corresponding to parameters $P_{u,k}$ and $q_{k,i}$ can be constructed as follows:

$$L = \sum_{(u,i) \in R} (r_{ui} - \bar{r}_{ui})^2 + \lambda \|q_i\|^2 = \sum_{(u,i) \in R} \left(r_{u,i} - \sum_{k=1}^K p_{u,k} q_{k,i} \right)^2 + \lambda \|p_u\|^2 + \lambda \|q_i\|^2. \quad (3)$$

In the above equation, \bar{r}_{ui} is the rating value of user u on video i predicted by the existing model parameters, and $\lambda \|p_u\|^2 + \lambda \|q_i\|^2$ is the regularization term used to prevent overfitting of the latent semantic model, which can be used to punish the complexity of the latent features.

In the era of megadata, real-time bidding technology is indispensable to truly realize accurate network marketing. This emerging technology model breaks the traditional online advertising trading mode, integrates technologies such as category search and big data, and helps enterprises to carry out marketing activities more pertinently, thus improving the utilization rate of enterprise resources and realizing low-cost expansion. Relying on data mining technology, data information is divided according to consumers' age, gender, consumption ability, and consumption habits, and the attributes of each consumer group are defined. The characteristics of enterprise products are matched with the attributes of consumer groups to get the approximate product market positioning. Through the collection, analysis, and processing of a large amount of data, the platform extracts customer attributes and purchasing behavior information as metadata and at the same time constructs the relationship model between customer attributes and products, so as to achieve accurate delivery of distinguishable and customizable product information.

Interest fit indicates the stability of users' browsing network video types. The higher the interest fit is, the closer the users' browsing video types are, and the lower the interest fit is, the greater the fluctuation of users' browsing video types is. p is defined as

$$p = 0.5^{|ap - wp|/wp}. \quad (4)$$

In the above equation, ap represents the average type of video users browsed, and wp represents the weighted average type. Let op represent the original video type, and ap is defined as

$$ap = \frac{\sum_{i=1}^n op_i \times t_i}{\sum_{i=1}^n t_i}. \quad (5)$$

wp is defined as

$$wp = \frac{\sum_{i=1}^n ap_i \times be_i}{\sum_{i=1}^n be_i}. \quad (6)$$

Interest fit reflects the concentration of users browsing online videos. The higher the degree of interest fit, the higher the user's attention to a video and the stronger the intention of browsing the video.

Unlike traditional online marketing, which emphasizes creativity and click rate, online precision marketing under the background of megadata emphasizes technology more. It relies on the corresponding technology to mine massive data, so as to obtain more useful customer information.

According to the multidimensional historical data information of customers, the platform processes and maps to metadata that can reflect the general situation of customers. At the same time, through analyzing the historical sales data of products, we can find out the common characteristics of customers and generate metadata that can reflect the sales characteristics of products. The data in the database is widely used. By mining the data in the consumer database, it is possible to judge the consumer's consumption grade and brand loyalty according to the consumer's characteristics. At the same time, not only is the data in the database valuable to this enterprise, but also it may be of high value to other enterprises, so the data in the database can also be sold, and so forth. After the model is built, customers can be identified according to the channel access information, and accurate product information can be delivered to customers through product marketing model matching. At the same time, a network sharing mechanism can be provided to amplify the marketing effect. After the information is released, actively collecting marketing results for feedback.

With the continuous marketing activities, customer information will be continuously returned to enterprises. The arrival of these data can update the database and reflect the latest situation of customers, which is very important for the subsequent marketing activities of enterprises. The analysis algorithms and tools of big data analysis are completely unfamiliar to ordinary enterprises. Data analysis is a complicated process, which requires comprehensive docking between traditional manufacturing enterprises and data analysis departments, and the results of data analysis can not only guide the upstream production process but also promote the downstream sales process.

Record the user's usage behavior or access behavior every time and establish a description database. Describe the user's behavior by using these access data and identify the effect of describing the user's behavior by weighting the description data, and then basically establish the user's interest preferences and other attributes for precise marketing. The prediction of users' online video preferences is calculated as follows:

$$P_{u,i} = \bar{R}_u + \frac{\sum_{m=1}^n (R_{m,i} - \bar{R}_m) \times \text{sim}(u, m)}{\sum_{m=1}^n \text{sim}(u, m)}. \quad (7)$$

In the above equation, \bar{R}_u is the average rating of user u to online videos, $R_{m,i}$ is the rating of user m to video i , \bar{R}_m is the average rating of user m to online videos, and $\text{sim}(u, m)$ is the similarity between users u and m .

After the nearest neighbors of the target user are obtained, user interest analysis can be performed on the videos that are not rated by the target user according to the scores of these neighbors, thereby generating recommendations. User u 's predicted rating for unrated video i is

$$P_{u,i} = \bar{R}_u + \frac{\sum_{v \in N_u} \text{sim}(u, v) \times (R_{v,i} - \bar{R}_v)}{\sum_{v \in N_u} |\text{sim}(u, v)|}. \quad (8)$$

In the above equation, N_u represents the nearest neighbor set of the target user u , $\text{sim}(u, v)$ represents the similarity between the target user u and its nearest neighbor v , and $R_{v,i}$ represents the rating of video i by user v . \bar{R}_u and \bar{R}_v represent the average ratings of target user u and neighbor user v , respectively.

In the process of network marketing, users can be identified and analyzed in groups, and, according to the historical purchasing behaviors of the same user groups, the purchasing behaviors and purchasing decision-making time points of relevant user groups can be predicted, and the behavior analysis of users who have already purchased can also be realized, the correlation degree of purchasing other products can be predicted, and the related sales of network marketing can be realized. In essence, big data analysis needs to realize the comprehensive linkage of various departments within the manufacturing industry. Under the condition of improving the overall management level of enterprises, select some professionals who are proficient in business, know about production, and have technical ability in data analysis. If you want to achieve this effect quickly, the operation process of big data analysis should be more humanized, which will be a better way. If people who have knowledge of production and sales and brand awareness in the enterprise conduct big data analysis, the enterprise can quickly realize scientific and refined marketing.

4. Result Analysis and Discussion

In order to ensure the high accuracy of the online video accurate recommendation obtained through big data technology, it is necessary to verify the rationality of the video accurate recommendation through practice and relying on the actual marketing effect. Complex test mainly uses software to do stress test on network video precision marketing system, focusing on the performance of its components in stability and performance. The test cycle is long, which is mainly divided into four steps, namely, test plan writing, test case design, test implementation, and test execution. If the marketing plan has achieved satisfactory marketing results, it shows that the marketing plan has high accuracy, and marketing work can be carried out based on this plan in the later period.

The user activity statistics provided by the social platform are used as the "activity" feature to depict the user portrait, so as to improve the extra active days required and the elapsed time since the user last logged in. The statistics of correlation coefficient of personal information characteristics are shown in Table 1.

According to the common points of related consumers, we can get the common points of consumers in the database and then get the data of ideal consumers. Some statistics of social platform data for user portraits are shown in Table 2.

Taking the statistical results of users' video preferences for big data as the research object, data clustering and

TABLE 1: Correlation coefficient statistics of personal information characteristics.

Gender	Correlation coefficient
Age	5.15×10^{-2}
Education	4.35×10^{-2}
Geographical location	4.18×10^{-2}
Work	4.88×10^{-2}
Activity	5.02×10^{-2}

TABLE 2: Social platform data statistics of user portraits.

Statistics	Parameter
Number of posts	856302
Total vocabulary	321225
Posting tool	4037
Emoji	86
Post time	25

information fusion processing are carried out. Comparison of accuracy data of the two analysis methods is shown in Figure 3.

The data acquisition module mainly collects and stores the original data. The analysis module realizes the analysis and processing of users' usage in the mobile Internet and is used to identify all the business content that users used in the past and the related web page content information that users have visited. First, the data just entered into the database is extracted, converted, and clearly processed, so that the original data can be converted into data that can be analyzed. Then, with the support of statistical software and decision support software, the detailed database required by each department is generated. Looking for ideal consumers, consumers of the same type generally have a lot in common, which can generally be reflected in the database. The algorithm in this paper is compared with the marketing recommendation algorithm in the literature, and the comparison result of marketing accuracy is shown in Figure 4.

It can be seen from the figure that the marketing accuracy of this algorithm has obvious advantages when the sample data is large. The users of the system are mainly enterprise users. After registering in the system, enterprises become users of the precision marketing system, which can manage themselves, apply for marketing orders, and so on. Enterprises should constantly improve and adjust the way of network marketing based on big data technology to make it more accurate. When the system completes the original data collection, the first step is to start data processing, then submit the results to the analysis engine, and back up the original data. The feedback information from customers will also be collected to correct the customer preference information and revise the recommendation model. The analysis engine simultaneously analyzes and mines various data and saves the analysis results into the analysis database.

Considering the running time and the sufficiency of algorithm comparison, the first 20000 records of two datasets are used as experimental data. The statistical information of different datasets is shown in Table 3.

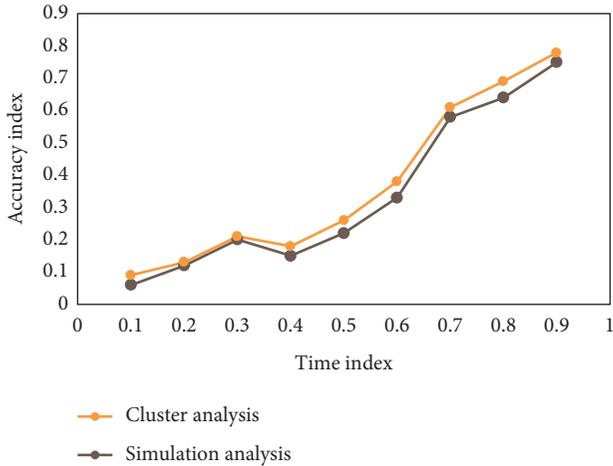


FIGURE 3: Comparison of accuracy data of two analysis methods.

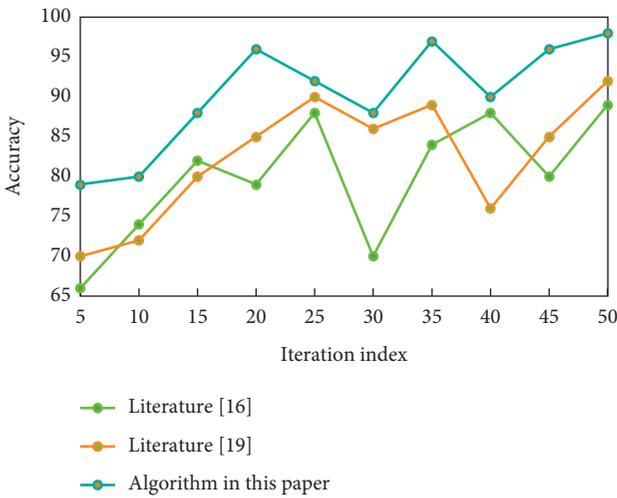


FIGURE 4: Marketing accuracy comparison results.

TABLE 3: Statistics of different datasets.

Data set	Trans	Items	Length
Short documentary	885	1132	1758
Sitcom	1255	1569	2211
Popular science video	1523	2223	2017
Funny video	2235	3164	2211

If the value is too large, it is too small to explain the feasibility of the recommendation method, and if the value is too large, the result is difficult to predict. Figure 5 shows the relationship between recommendation list length and precision.

Through the third-party monitoring tools, strictly record the user's ID, password, browsing history and stay time, and so forth to help enterprises collect data sources of network precision marketing. Get as much potential information as possible from limited information and find valuable association rules hidden in the records visited by different customers in a certain period of time. By combining with practice, we can further judge the usefulness of the mining

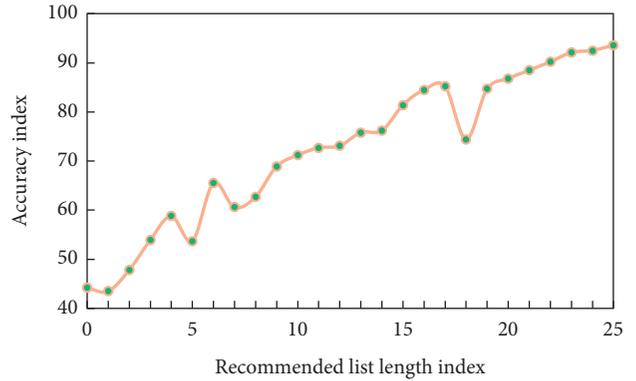


FIGURE 5: Relationship between recommendation list length and precision.

results. Big data storage tools include MPP database for static data, Hadoop storage platform for unstructured data, and big data all-in-one machine integrating software and hardware. According to the data in the created database, the data warehouse of the system is built after collection and analysis, and the data mining model of data warehouse access, dimensional dataset analysis, and knowledge reflection is completed. Then create a multidimensional dataset, define a new data source view, extract and convert the data map in the database into marketing data table, website classification data table, and so forth, and identify the fact data table and dimension table, create a multidimensional dataset, and select appropriate measurement values.

The experimental conditions for testing the length of the list are optimized, so the accuracy may be higher. After many experiments, the length of the list is finally set to 50, so the relationship between the accuracy of the two recommendation methods and the time series is shown in Figure 6.

Through cluster analysis of common users in enterprises, targeted analysis of individual users, cross analysis of category users, and so forth, we can grasp the trend of customer demand more comprehensively and then improve customer satisfaction. The system creates the sqlmapcon Figurexml configuration file, which contains the database links and information corresponding to sql requested by users and also describes the mapping relationship between the data provided by customers and Action Form components. Sqlmapcon Figurexml is used to load and configure various components used by Struts framework and establish the relationship between controller and model. The analysis of users' web page access data is mainly to obtain the HTTP log information of users' web pages for related data analysis. The analysis contents include users' access time period, access frequency, access habits, search habits, commonly used search keywords, and other information contents. With the increase of the number of topics, the complexity and time consumption of the model increase. The evaluation results of interest model of the marketing algorithm in this paper and the algorithm in literature [16] are shown in Figure 7.

Because big data is massive, fast, flexible, diverse, and low in value density, it is out of date to use traditional business

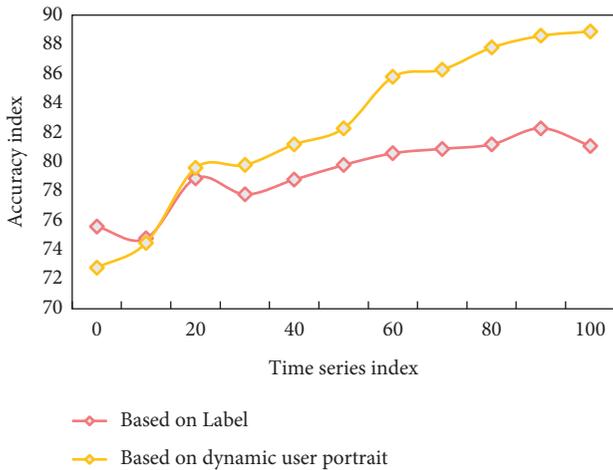


FIGURE 6: Accuracy comparison.

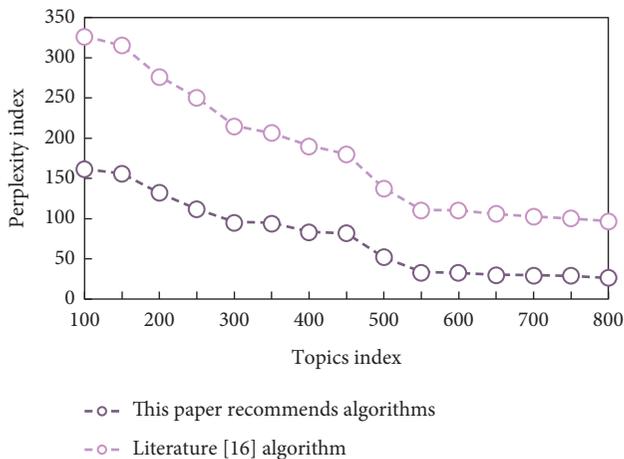


FIGURE 7: Interest model evaluation results.

intelligence. Enterprises need to distinguish different occasions and adopt different treatment methods according to different business objects. Do not make the analysis and processing of data extremely complicated. The framework structure of model components dealing with hierarchical Struts framework is distinct, giving full play to the advantages of Struts framework. The division of labor is clear when developing projects, which is beneficial for developers to realize modular programming, thus improving the development efficiency of the program and making it easier to maintain and expand the program. Only by collecting, processing, analyzing, and forecasting the scattered mass data can the advertising suppliers and demanders make better use of network data and achieve the goal of precise marketing.

This chapter focuses on the performance test of the core algorithm of data mining in this paper, as well as the functional test of the system. Because the early system analysis and system design work of the project are meticulous and thorough, the coding completed according to the detailed design can basically eliminate logic errors after unit testing. The basic functions of this test are qualified. During

the whole test process, the system runs stably and successfully passes all kinds of tests.

5. Conclusions

As a new marketing model, video precision marketing is sought after by more and more enterprises with the thinking of “emphasizing customers as the center and relying on big data technology to realize personalized marketing.” Accurate marketing under the big data environment can timely discover various unmet needs of customers, and the products and services provided to customers are products and services that can truly meet customer needs. This paper takes users as the center and closely combines big data with content, video marketing, and management, and, through the application of recommendation algorithm, we can gain a better and more scientific insight into the information needs and preferences of the audience. In order to verify the effectiveness of this algorithm, we carry out experiments. It can meet the needs of accurate recommendation and has certain practical value. Due to the continuous progress of the era of megadata, more and more enterprises will use big data to make accurate recommendations, accurately depict the potential needs of users in more dimensions, continuously improve the accuracy of marketing, user maintenance, and service, and seek new growth momentum for the progress of enterprises. On the one hand, big data can effectively improve the effect of precision marketing; on the other hand, it can also bring more consumer choices to consumers, so that consumers can consume according to their own wishes, make up for the shortcomings of passive marketing in the past, and further strengthen the efficiency of online marketing. In the future work, we should improve the technical level, break through the application barriers of big data, and enable enterprises to obtain data conclusions that are really conducive to the growth of enterprises when using big data analysis for precise marketing.

Data Availability

The figures and tables used to support the findings of this study are included in the article.

Conflicts of Interest

The author declares that there are no conflicts of interest.

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