

# **Research on the Impact of Big Data and Short Video Social Marketing on Consumers' Decision-Making Psychology**

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## **Abstract**

**This article explores the impact of big data and short-video social marketing on consumers' decision-making psychology. Research shows that big data uses algorithmic analysis to precisely push content, while short videos enhance user engagement through their interactive nature and emotional resonance. The combination of precise content delivery and deep interaction can rapidly shorten the communication gap between brands and consumers. The two work together at the levels of consumers' cognition, emotions, and behaviors, reshaping the path through which consumers receive information and also altering the internal logic of their preference formation and purchase decisions. The article not only analyzes the methods of collecting consumer behavior data and their practical applications but also explains the design logic of personalized recommendation systems. At the same time, it points out problems such as the information cocoon that may be caused by algorithmic recommendations, and it provides a thought-provoking starting point for balancing the application of technology and the protection of user rights and interests. The purpose of this research is to provide a reference for optimizing digital marketing models and helping consumers make rational decisions.**

## **Keywords**

**Big Data; Short Video Social Marketing; Decision-making Psychology.**

## **1. Introduction**

With the rapid development of big data technology and short-video platforms, marketing models are shifting from traditional dissemination to a direction that emphasizes both data-driven and content interaction. Big data not only enables precise analysis and prediction of consumer behavior but also influences consumers' cognition and choice processes through algorithmic recommendations [1]. Short-video social platforms have become important channels for enterprises to build brand images and stimulate purchases due to their high-frequency interactivity, immersive experiences, and algorithmic distribution mechanisms [2,3]. At the theoretical level, this study mainly focuses on consumer decision-making theory, the Theory of Planned Behavior (TPB), the Information Processing Theory, and the Elaboration Likelihood Model (ELM). According to consumer decision-making theory, consumers form purchase decisions through the stimulation of external information in three stages: cognition, emotion, and behavior [3,4]. The Theory of Planned Behavior emphasizes the influence of attitudes, subjective norms, and perceived behavioral control on intentions and behaviors [4]. The Information Processing Theory focuses on the screening and integration process of individuals when dealing with multi-dimensional information [1,5]. The Elaboration Likelihood Model reveals the central path or peripheral path processing methods of individuals for information at different levels of involvement [6]. The main points of academic debate are as follows: Firstly, whether algorithmic recommendations and

personalized push notifications have weakened consumers' ability to make autonomous decisions, leading to information cocoons and algorithm dependence [6,7]; Secondly, the tension between the entertainment and authenticity of short-video content, that is, the changes in the weight of emotional resonance and rational judgment in purchasing decisions [3,4]. Moreover, different scholars also have differences in their views on whether data-driven marketing enhances user experience or manipulates psychology [2,6]. In conclusion, to study the impact of big data and short-video social marketing on consumers' decision-making psychology, it is necessary to establish a bridge between technological empowerment and psychological mechanisms, and explore the interactive relationship among data algorithms, content dissemination, and psychological cognition [1,3]. This will provide theoretical support for the ethics and effectiveness optimization of digital marketing.

## **2. Literature Review**

In today's information age, big data and short videos have become an indispensable part of people's lives. With the popularization of smartphones and the advancement of network technology, short video platforms such as TikTok and Red Note have rapidly emerged, becoming important channels for people to obtain information, entertain themselves, and share experiences [2]. At the same time, the development of big data technology enables enterprises to analyze users' browsing records, interest preferences, and consumption behaviors, and push more precise content and advertisements [1]. This data-supported short video social marketing model is quietly changing people's consumption patterns and psychological decision-making processes. Compared with traditional advertising methods in the past, current short-video marketing has greater interactivity and appeal [3,4]. In the past, TV advertisements or poster promotions were often one-way communication, with consumers merely passively receiving information; now, users can participate in it through likes, comments, forwards, and even creating their own short videos [2]. The content of short videos is usually close to life, has a fast pace, and is emotionally genuine, which resonates with the audience [2]. Especially when well-known bloggers or ordinary users share their own usage experiences, viewers often develop a sense of trust and imitation mentality, thereby influencing their purchase intentions [7]. Meanwhile, the big data algorithm will continuously recommend similar content based on users' viewing habits, keeping them on the platform for a longer time [1,6]. This personalized recommendation not only enhances the user experience but may also cause consumers to get trapped in an information bubble, where they only come into contact with the content they are interested in and ignore other viewpoints or products [7]. This behavior, guided by the algorithm, makes it difficult for people to distinguish whether it is due to genuine needs or subtle influences, thus prompting thoughts on the consumers' ability to make autonomous decisions. Therefore, studying the impact of big data and short-video social marketing on consumers' decision-making psychology is of great significance [1,3]. On one hand, it helps us understand how enterprises use technological means to attract consumers and influence their psychology and behavior; on the other hand, it also enables consumers to face massive information and diverse advertisements more rationally, and cultivate the ability of independent thinking and judgment. This article will start from the characteristics of big data and short-video marketing, analyze the influence mechanisms of these two in the cognitive, emotional, and behavioral levels on consumers' decision-making, and discuss the opportunities and potential problems brought by this marketing method, providing a reference for understanding the consumption psychology in modern society.

### **3. The Concept and Development of Big Data and Short Video Social Marketing**

#### **3.1. Definition and Characteristics of Short Video Marketing**

Short videos are a form of internet content dissemination. They come in various forms and are characterized by entertainment value and topicality. They are online videos lasting from a few seconds to several minutes [2]. Its core feature lies in shortness, usually lasting for less than one minute, which can quickly capture the attention of users [2]. Short-video marketing mainly has four key characteristics. The first is high interactivity. The platform offers various rich functions such as likes, comments, and sharing, which can effectively enhance users' sense of participation. The second is fast dissemination. Short-video content is easy to spread, and users can achieve viral dissemination by simply sharing with one click. The third is diverse content, covering various fields such as comedy, education, and life, which can meet the personalized needs of different users. The fourth is precise targeting. Relying on big data analysis technology, the platform can precisely push content to target users, thereby improving the overall marketing effect. Marketing is essentially a complete process of discovering, responding to, and guiding consumers to have a demand for a specific product. Marketing strategies are the marketing concepts and practical operation methods that enterprises tailor for themselves when conducting marketing activities, taking into account the product's own characteristics, the target audience they want to reach, the available communication channels, and the specific execution procedures. In the field of marketing strategies, the 4R marketing theory is one of the most representative theories [5]. The 4R in this theory specifically refers to four core dimensions: relationship, savings, association, and return. This theory was proposed by Don Schultz in the early 21st century. Its core viewpoint is that enterprises need to closely monitor the market competition situation, meet the existing needs of customers, actively explore and create new demands, and ultimately achieve the goal of mutual benefit for both the enterprise and the customers [2].

#### **3.2. The Development History of Short Video Marketing**

The development history of short-video marketing can be traced back to around 2013 [2]. At that time, short-video functions such as Vine and Instagram played a key role, laying the foundation for short videos. In 2016, the rise of platforms like Douyin marked the entry of short-video marketing into a stage of rapid development [2]. The development of the short-video industry can be clearly divided into three stages. During the embryonic period from 2013 to 2015, which was characterized by the Vine platform from abroad and the new short-video function added by Instagram, users began to break away from the traditional long-video creation and viewing habits, attempting to record their lives and share interesting events in a shorter video format. Short videos, as a new content form, gradually entered the public's view during this period. Entering the growth period from 2016 to 2018, domestic platforms such as Douyin rose rapidly and accumulated a large number of users. Short-video content creation is no longer limited to personal daily sharing and has gradually extended to multiple fields such as food, beauty, and knowledge popularization. At the same time, the convenient sharing function enabled high-quality content to quickly spread in social circles, and the number of content creations and dissemination scope in the entire industry experienced explosive growth [2,3]. From 2019 to the present, it has been the industry's mature period. With the stable user scale of short videos, their commercial value has been widely recognized. Short-video marketing has gradually become an important means for enterprises to promote brands and products. At the same time, users' requirements for content have continuously improved, promoting the continuous optimization of short-video content quality [2]. 4K high-definition shooting, AI special effects, and other technologies have also been more widely applied in

creation, allowing the entire industry to develop in a more professional and standardized direction [2,3].

## **4. Consumer Behavior Analysis and Big Data**

### **4.1. Collection and Classification of Consumer Purchase Behavior Data**

In the related fields of consumer behavior analysis and big data research, one of the most fundamental tasks is the effective collection and scientific classification of consumer purchasing behavior data [1,6]. With the widespread use of digital platforms and mobile devices, consumers constantly generate a large amount of data in their daily activities, including online searches, browsing history, purchase records, click behavior, and post-purchase feedback [1,6]. These data sources form the foundation for understanding consumer preferences and predicting future purchasing behavior. Consumer data is usually collected through multiple channels, such as e-commerce platforms, social media platforms, enterprise customer management systems, and mobile applications. For example, online shopping platforms record consumers' purchase dates, product categories, prices, and payment methods, while social media platforms track user engagement, including likes, shares, and comments [2,3]. These diverse data types must be systematically classified according to multiple dimensions such as time, location, age group, product type, and consumption frequency to enable further analysis. Once classified, consumer data can be processed through technologies such as data mining and machine learning to identify patterns hidden beneath complex information structures [1,7]. Through in-depth analysis, enterprises are able to recognize not only consumers' explicit needs but also implicit demands that consumers themselves may not be aware of. For instance, repeated browsing of similar products without purchase may indicate hesitation or unmet expectations [6,7]. These insights become the key basis for designing recommendation systems and targeted marketing campaigns. In addition, the rapid growth in data volume raises challenges regarding storage, processing speed, and data security. Efficient data processing methods such as cloud computing and distributed systems are therefore essential for managing large-scale behavioral datasets [1,6]. As big data technology continues to advance, enterprises are better positioned to handle massive datasets, which lays a solid technical foundation for more accurate consumer profiling and personalized recommendations [1,7].

### **4.2. The Significance of Big Data in Consumer Behavior Analysis**

The behavior of consumers is not the result of a single factor, but rather a product of the combined influence of various factors such as psychology, society, and economy [6]. By leveraging big data analysis technology, enterprises can deeply explore the underlying patterns of consumer behavior [1,3]. This not only enables them to identify hidden purchasing patterns and clarify consumers' product preferences, but also to precisely grasp key information such as peak purchase times [1,3]. These in-depth insights obtained through data can provide strong support for brands in formulating marketing strategies, and at the same time help brands continuously optimize existing strategies, making the marketing direction more in line with consumer needs [1,3,4].

### **4.3. The Application of Big Data in Marketing and Sales**

The application of big data in the fields of marketing and sales mainly focuses on four core aspects [1,3]. Firstly, it involves creating personalized customer experiences [1,7]. By analyzing customers' past consumption behaviors and interaction records, enterprises can provide tailored product recommendations and exclusive discounts, thereby enhancing customer satisfaction [1,7]. Secondly, it enables precise demand forecasting [1,3]. By integrating and analyzing market data with big data, it is possible to accurately predict

changes in market trends and the demand for different products, providing references for inventory management and production planning. Thirdly, it helps improve after-sales services. By sorting out and analyzing customers' feedback and complaint contents, enterprises can promptly identify weak links in after-sales services and take measures to optimize and enhance them [1,6]. Fourthly, it optimizes market segmentation [1,3]. By classifying and sorting customers' demographic information, consumption behavior characteristics, and psychological preferences using big data, customers can be divided into different target groups, allowing marketing to be more targeted [1,3,7].

## **5. Design and Implementation of a Personalized Recommendation System**

Behavioral patterns of consumers are deeply explored to establish consumer profiles [4,6]. The personalized recommendation system of short-video platforms is one of its core technologies and is also a crucial aspect that affects user experience and marketing effectiveness [7]. This system mainly relies on big data analysis and artificial intelligence algorithms [1,7]. By collecting and modeling users' behavior data such as browsing history, likes and comments, duration of stay, and followed objects, it constructs an interest profile of the users. The platform uses these data and employs algorithms like collaborative filtering, deep learning, and content recognition to precisely predict each user's preferences, thereby recommending video content or advertisements that are most likely to capture their attention in the information flow [7]. With the rapid development of big data and artificial intelligence technology, personalized recommendation systems have become a core component of short-video platforms and digital marketing strategies [1,7]. Based on big data analysis, consumers' purchase histories, browsing records, and interaction behaviors are collected and analyzed in order to build comprehensive consumer profiles. These profiles reflect users' interests, consumption levels, lifestyle characteristics, and content preferences. As a result, platforms are able to match suitable content with individual users, significantly enhancing user experience and marketing efficiency [1,7]. The design of a personalized recommendation system generally consists of three main stages: data collection, data processing, and algorithmic recommendation. First, data are collected from multiple behavioral indicators such as users' viewing history, search activities, likes, comments, shared content, and followed accounts. These behaviors represent users' preferences either explicitly, such as clicking on product links, or implicitly, such as watching a specific category of videos for an extended duration. The variety and complexity of these datasets enable the system to gain a multi-dimensional understanding of user behavior.

Second, the raw data must be cleaned, integrated, and structured before being used for analysis. This step involves eliminating invalid records, correcting errors, and standardizing data formats to ensure data quality. Feature extraction techniques are then applied to convert raw data into meaningful variables, such as the frequency of viewing certain content types or the average spending level. These variables are essential for constructing accurate interest profiles. Third, artificial intelligence algorithms are applied to analyze user profiles and generate personalized recommendations. Among the most commonly adopted methods is collaborative filtering, which recommends content based on similarities between different users' preferences. For example, users with similar viewing habits may receive similar product recommendations. In addition, deep learning techniques enable systems to uncover complex relationships within large datasets and improve predictive accuracy. Content recognition technologies further analyze visual and audio elements within videos to assess their relevance to user interests. The ultimate goal of recommendation systems is to deliver content that matches users' preferences in real time. By embedding personalized advertisements within short-video platforms, enterprises can increase exposure and

conversion rates [3,4]. At the same time, users benefit from receiving content that aligns with their interests, reducing the effort required to search for information [7]. However, the design of recommendation systems also presents ethical challenges [7]. Over-personalization may trap users in information bubbles, limiting exposure to diverse viewpoints. Therefore, system design should strike a balance between personalization and information diversity, ensuring both user satisfaction and intellectual openness. In summary, personalized recommendation systems represent a technological integration of big data and artificial intelligence. By analyzing purchasing habits and behavioral data, platforms can deliver precise content while enterprises gain higher marketing efficiency. Nevertheless, future system optimization must consider both technical advancement and social responsibility.

## 6. Conclusion

This study demonstrates that big data and short-video marketing have fundamentally reshaped consumer decision-making processes in the digital age. The use of algorithmic recommendation systems not only increases marketing efficiency but also enables highly personalized content delivery, ensuring that consumers are more likely to encounter products and services aligned with their individual preferences. In parallel, short-video platforms leverage emotionally engaging content to capture user attention, driving higher levels of engagement and interaction than traditional marketing channels. This combination of data-driven precision and emotionally resonant content has created a powerful marketing ecosystem that significantly influences consumer behavior. However, this transformation also carries important risks. Over-reliance on algorithm-driven information can reduce consumer autonomy, as individuals may be increasingly exposed only to content that reinforces their existing preferences and beliefs, creating information bubbles. Additionally, the extensive collection and use of personal data raise serious privacy concerns, underscoring the ethical challenges inherent in modern digital marketing practices. These issues highlight the pressing need for both regulatory frameworks that ensure the responsible use of data and educational efforts to promote critical consumption literacy among users. Looking forward, the central challenge for digital marketing will lie in balancing technological efficiency with the preservation of human agency. Sustainable development in this field will require strategies that leverage the benefits of big data and algorithmic targeting while safeguarding consumer autonomy, privacy, and well-being, ensuring that digital marketing evolves in an ethical and socially responsible manner.

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