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Research on Marketing Strategy based on Social Media Big Data

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Abstract: With the rapid advancement of internet technologies, social media platforms have emerged as pivotal channels for information exchange and dissemination. The vast amounts of user-generated data provide businesses with unprecedented insights. The analysis of big data from social media allows for more precise and effective marketing strategies. This paper aims to explore the characteristics of big data from social media and analyze its applications in marketing strategies. By delving into data types, volumes, structures, and user behavior, it reveals the main challenges businesses face in big data applications and proposes corresponding solutions. Precision marketing, brand management, market trend forecasting, and crisis management are significant areas of application for big data in marketing. This paper, through a detailed examination of these strategies, highlights the potential and challenges of big data in contemporary marketing. Ultimately, it seeks to offer theoretical support and practical guidance for businesses on how to develop and implement effective marketing strategies in a big data-driven market environment.

Keywords: social media; big data; marketing strategy

1. Introduction

The advent of the internet era has profoundly transformed the methods of information dissemination and acquisition. Social media platforms, such as Facebook, Twitter, and WeChat, have not only become pivotal tools for daily communication but also crucial battlegrounds for corporate marketing endeavors. The vast user base and the immense volume of user-generated content have turned social media into a veritable goldmine of data. Advances in big data technology have enabled the effective collection, processing, and analysis of this data, providing invaluable insights for crafting marketing strategies. Traditional marketing methods are increasingly revealing inefficiencies and lack of precision. Through social media big data, companies can gain a more accurate understanding of consumer needs and behaviors, engage in personalized marketing, enhance brand management effectiveness, predict market trends, and even respond swiftly and adeptly in times of crisis. This data-driven marketing paradigm is reshaping the competitive landscape, offering new growth opportunities for businesses. However, effectively harnessing this big data remains fraught with challenges. Issues such as data privacy and security, data quality and accuracy, and insufficient application capabilities hinder the comprehensive use of big data in marketing. This paper will delve into the characteristics of social

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media big data, analyze these challenges, and explore corresponding solutions, providing guidance for enterprises in their marketing efforts in the age of big data.

2. Characterization of Social Media Big Data

2.1. Data Types

The types of big data generated from social media are diverse and multifaceted, primarily encompassing textual data, image data, video data, and metadata. Textual data, the most prevalent type on social media platforms, includes user comments, posts, messages, and more. Through natural language processing techniques, this textual data can reveal user sentiments, needs, and interests, offering profound consumer insights. Image and video data, on the other hand, capture users' visual behaviors and preferences. Through image recognition and video analysis technologies, one can discern users' intuitive responses and preference trends regarding brands and products. Metadata comprises basic user information, geographical locations, timestamps, and more, which assist businesses in constructing user profiles and tracking behavioral patterns [1]. The variety inherent in social media big data underscores its significant value in shaping marketing strategies, enabling companies to gain comprehensive and nuanced market insights through the integrated analysis of different data types, thus enhancing the precision and effectiveness of their marketing efforts. Nonetheless, the complexity introduced by this data diversity necessitates advanced technological capabilities and specialized personnel to fully unlock its potential value.

2.2. Data Volume and Data Structure

One of the defining characteristics of big data in social media is its sheer volume and the diversity of its data structures. Each day, billions of users across the globe generate an immense amount of data on various social media platforms, which accumulates at an exponential rate, offering businesses a wealth of resources. However, the enormity of this data presents challenges in processing and storage, necessitating advanced technological means and robust computational power to support real-time data processing and analysis. In terms of data structure, social media big data encompasses not only structured data, such as user information and interaction records, but also a substantial volume of unstructured data, including text, images, and videos. While structured data is convenient for storage and retrieval, unstructured data often harbors a greater wealth of user sentiments and behavioral information, proving to be of higher value in shaping corporate marketing strategies. The processing of unstructured data requires the implementation of advanced technologies such as natural language processing, image recognition, and video analysis, in order to extract meaningful insights and patterns. This unique combination of data volume and structure embodies both the treasure trove of social media big data and the complexity it entails. Should enterprises adeptly confront these challenges and fully harness the potential of big data, they could secure a remarkable advantage in an intensely competitive market landscape. By delving deeply into and analyzing the vast and diverse datasets, businesses can attain precise insights into market trends, refine their marketing strategies, and enhance brand influence.

2.3. User Behavior Analysis

A key characteristic of big data from social media lies in its comprehensive recording and analysis of user behavior. This data reflects various aspects of users' interactions on the platform, including their interaction patterns, content preferences, emotional expressions, and consumption intentions. By analyzing interactions such as likes, comments, and shares, businesses can gain insights into users' genuine attitudes and emotional inclinations toward brands and products. Text mining and sentiment analysis techniques can delve into users' comments and feedback, uncovering their underlying needs and con-

cerns, thereby providing a robust foundation for product improvement and service optimization. The diversity and real-time nature of user behavior data make it a vital tool for forecasting market trends and consumer behavior. By tracking users' behavioral paths on social media, businesses can identify potential customers, refine marketing strategies, and enhance user experiences. For instance, analyzing browsing history and purchase behavior can infer interests and preferences, allowing for personalized recommendations that increase conversion rates. Furthermore, user behavior analysis aids businesses in responding swiftly during crises. When negative information spreads, timely monitoring and analysis of user behavior can enable companies to take prompt actions to mitigate brand damage. In summary, the analysis of user behavior from social media big data provides businesses with a profound understanding of consumer behavior and needs, serving as a crucial basis for crafting precise marketing strategies [2].

3. Problems

In the study of marketing strategies grounded in social media big data, the challenges presented are not to be overlooked. Data security and privacy protection emerge as paramount concerns; the vast troves of user data amassed on social media platforms are frequently exploited for commercial purposes without explicit user consent, leading to breaches of privacy and crises of trust. Numerous enterprises grapple with the legal and compliant usage of such data, thereby heightening their exposure to legal risks. The technological hurdles should not be underestimated either. The processing of social media big data necessitates formidable computational power and sophisticated algorithms, yet many small and medium-sized enterprises lack the requisite technical resources and talent to navigate these demands. This deficiency not only constrains the depth of data exploration and effective utilization but also risks producing biased and misleading analytical outcomes, ultimately impairing the formulation and execution of marketing strategies. Issues pertaining to data quality severely undermine the reliability of big data analyses. The data on social media is often a cacophony of diverse and conflicting information, rife with noise, falsehoods, and irrelevant entries. When low-quality data remains unfiltered and uncurated, it significantly disrupts analytical results, compromising the precision and efficacy of marketing strategies. The phenomenon of homogenization is particularly pronounced within social media marketing. Many enterprises, when devising marketing strategies, tend to lean excessively on established case studies and prevailing trends, which culminates in a proliferation of marketing tactics that lack individuality and creativity. Such homogenized marketing content not only struggles to capture user attention but also finds it challenging to distinguish itself amidst fierce market competition, thwarting genuine brand differentiation. The intricacy of user behavior and emotions presents yet another formidable challenge. The actions and sentiments of social media users are multifaceted and ever-changing, influenced by a myriad of factors, rendering them difficult to accurately predict through simplistic data aggregations and analytical frameworks. This complexity can lead enterprises astray in their marketing strategy development, causing them to miss the core needs and latent motivations of users, thereby hindering effective enhancement of marketing outcomes. As market competition intensifies, social media platforms are in a constant state of flux and evolution. Enterprises often encounter the challenge of frequently shifting platform rules and algorithms when formulating marketing strategies, which renders extant approaches impractical over time, necessitating ongoing adjustments and refinements. Such constant recalibration not only escalates marketing costs but also tests an enterprise's agility and innovative capacities [3]. In summary, the pursuit of marketing strategies founded on social media big data is beset by a multitude of challenges within practice. The existence of these issues not only impedes the effective utilization of data and the execution of marketing strategies but also raises the stakes for an enterprise's long-term growth and market competitiveness. Against this

backdrop, the critical endeavor for enterprises is to thoroughly contemplate how to effectively surmount these challenges and fully harness the potential of social media big data.

4. Marketing Strategy Based on Social Media Big Data

4.1. Precision Marketing

Precision marketing is a pivotal strategy rooted in the vast expanse of big data from social media. Its essence lies in leveraging an extensive array of data to analyze user behaviors and preferences, thereby achieving personalized and efficient marketing outreach. The interactive data from users on social media platforms—such as likes, comments, and shares—reflects their interests in various content and brands. Through meticulous exploration of this data, a vivid portrayal of user profiles can be crafted. These profiles not only encapsulate fundamental demographic information but also encompass users' interests, consumption habits, and social circles. Through refined data analysis, businesses are capable of accurately identifying potential customer cohorts and formulating targeted marketing strategies tailored to diverse user segments. For instance, for those who frequently engage with health-centric content, companies might promote relevant health products and services, while for fashion enthusiasts, the latest trends and stylish items could be showcased. Furthermore, big data from social media affords companies the ability to adjust their marketing strategies in real time. Unlike traditional marketing methods that often rely on retrospective data analysis, social media big data offers instantaneous user feedback, enabling businesses to swiftly gauge market reactions and adapt their advertising and content strategies to maximize marketing efficacy. This immediacy not only enhances the flexibility and responsiveness of marketing efforts but also significantly elevates user satisfaction and brand loyalty. Moreover, precision marketing adeptly mitigates the waste of marketing resources. By conducting precise analyses of user behaviors, companies can eschew broad-spectrum advertising tactics, concentrating their marketing efforts on those user groups most likely to convert, thereby improving the return on investment of their advertising initiatives [4]. Accurate user targeting and personalized content recommendations make marketing messages more attuned to user needs, augmenting acceptance and willingness to engage. In practice, the execution of precision marketing hinges upon advanced data analysis technologies and tools, such as machine learning, natural language processing, and big data processing platforms. The deployment of these technologies not only enhances the efficiency and accuracy of data analysis but also empowers companies to extract profound user insights from the extensive data pools of social media. In summary, the cornerstone of precision marketing rests in the comprehensive harnessing of social media big data's potential, utilizing precise user profiling and real-time market feedback to facilitate personalized and efficacious marketing initiatives, ultimately elevating a company's competitive edge and brand influence.

4.2. Brand Management

Brand management based on big data from social media has emerged as a pivotal strategy for contemporary enterprises seeking to enhance their brand awareness and reputation. Through the analysis of vast datasets, companies can monitor their brand's image and standing on social media in real time, gaining insights into public sentiment and perception towards their brand. This immediate monitoring empowers businesses to promptly identify potential brand crises and take corrective measures, thereby effectively curbing the dissemination of negative information. The utilization of big data in social media elevates the interaction and precision of brand management. Every piece of content shared on social media platforms receives instant user feedback, such as likes, comments, and shares. This feedback not only reflects users' engagement with the brand's messaging but also unveils their emotional attitudes toward the brand. By analyzing this data, companies can gain a deeper understanding of users' authentic perceptions, adjust their branding strategies, and align their brand image more closely with the expectations of

their target audience. Furthermore, data analysis aids businesses in recognizing their brand's influence across diverse user demographics. Different segments—distinguished by age, gender, geographical location, and interests—possess varying perceptions and evaluations of the brand. Through nuanced data segmentation, companies can identify strengths and weaknesses within specific markets and craft differentiated branding strategies tailored to distinct user groups. For instance, for younger demographics, companies may adopt more fashionable and interactive branding approaches, while for older audiences, an emphasis on the brand's history and heritage may be more appropriate. Brand management encompasses not only the cultivation of external image but also the establishment of an internal brand culture. Employee behavior data on social media can reflect the level of immersion in the company's brand culture and the sense of brand identification among employees. Such data provides a valuable reference for shaping a cohesive and positive brand cultural environment. Additionally, big data can facilitate competitive analysis [5]. By monitoring and analyzing the performance of rival brands on social media, companies gain insights into competitors' branding strategies and market reactions, allowing them to timely recalibrate their own brand positioning and marketing tactics to maintain a competitive edge. Throughout the brand management process, companies must uphold a strong ethical consciousness and respect users' privacy and data usage rights. Only by collecting and utilizing data in a lawful and compliant manner can organizations earn user trust and cultivate a favorable brand image. In summary, brand management grounded in social media big data offers enterprises precise, real-time, and interactive avenues for brand operation, enabling them to more effectively create and sustain their brand identity.

4.3. Market Trend Prediction

Predicting market trends is a pivotal application of big data analytics derived from social media, centrally entailing the analysis of voluminous user data to discern signals of market shifts and emerging trends. Such forecasting not only facilitates enterprises in promptly adjusting their marketing strategies but also secures a vantage position in the competitive marketplace. The burgeoning deluge of user data generated daily by social media platforms encompasses a wealth of insights into user interest and engagement with diverse products, brands, and topics. Through the lens of big data analysis, enterprises can discern the subtlest alterations in user preferences and thereby anticipate future market demands. For instance, the burgeoning attention towards a novel product on social media may herald an upcoming trend in the market. Businesses can thus adapt their product development and promotional strategies to swiftly respond to market evolutions. Market trend forecasting also empowers enterprises to identify latent crises and opportunities. Utilizing sentiment analysis, companies can gauge user reactions towards specific events or products, thereby predicting market trajectories. An upsurge in negative user feedback regarding a product may signal a waning market reception, necessitating timely product improvements or modifications in promotional tactics. Conversely, a progressive influx of positive feedback towards a new product portends a market opportunity. Big data analytics is capable of predicting not only short-term market trends but also identifying long-term developmental directions. Through retrospective analysis of historical data, businesses can discern cyclical patterns in market changes and formulate predictions regarding future market trends. For example, sales data of certain seasonal products during specific timeframes can help enterprises optimize inventory management and marketing activities. It is imperative to note that the accuracy of market trend forecasting hinges upon the quality of data and the scientific rigor of the analysis models. Enterprises must establish robust mechanisms for data collection and processing to ensure the veracity and integrity of the data. Moreover, leveraging advanced machine learning algorithms and predictive models can enhance the precision of market trend forecasting. Executing market trend forecasting necessitates a conscientious consideration of issues related to

data ethics and user privacy. Ethical and lawful data analysis practices are indispensable for ensuring the credibility of the predictions and fostering user trust in the enterprise. In sum, market trend forecasting based on big data analytics derived from social media provides forward-looking market insights and a scientific basis for decision-making, enabling enterprises to navigate market changes with agility and initiative, thereby enhancing their market competitiveness and brand influence [6].

4.4. Crisis Management

In the modern business landscape, crises inevitably accompany the growth and development of brands. Social media big data offers unprecedented real-time monitoring and response capabilities for crisis management, allowing enterprises to detect potential crises earlier, swiftly formulate and implement effective strategies, and mitigate brand damage. The openness and high interactivity of social media platforms make consumer feedback more immediate and widespread. Negative information can rapidly proliferate, inflicting severe damage on brand image. Through social media big data, companies can track user-generated content (such as comments, posts, videos, etc.) in real time, keenly detecting signs of negative sentiment. Sentiment analysis and topic monitoring tools can identify fluctuations in negative emotions within content, providing early warnings to businesses. In the early stages of a crisis, data analysis helps enterprises pinpoint the origin and dissemination paths of the crisis, understand the core user groups and key opinion leaders involved. This information is crucial for formulating targeted crisis management strategies. For instance, by identifying influential opinion leaders, a company can choose to proactively engage these individuals, explain the situation, soothe emotions, and even seek their assistance in clarifying the facts. Big data also aids companies in assessing the true impact of a crisis. By analyzing the breadth and depth of related discussions across different social media platforms, businesses can gauge the severity and duration of the crisis, rationally evaluate public sentiment and market response, and avoid excessive or insufficient crisis response measures. Effective crisis management not only involves swiftly addressing negative information but also requires the restoration and rebuilding of brand image. User feedback and interaction data provided by social media big data can help companies understand public reactions to crisis handling, thereby adjusting subsequent brand communication strategies to enhance recovery outcomes. For example, actively responding to user concerns and transparently releasing information allows affected users to perceive the company's sincerity and sense of responsibility, thereby regaining trust. After the crisis, reflection and review are equally important. Companies can perform retrospective analysis on the data accumulated during the crisis to understand the root causes and the gains and losses during the handling process, accumulating experience and lessons for future crisis management. Such reflection not only helps improve the company's crisis response capability but also strengthens employees' psychological preparedness and decisiveness when facing crises. In summary, leveraging the power of social media big data transforms crisis management from a traditional passive response into an active monitoring and prevention strategy, enabling companies to handle brand crises more flexibly and efficiently, thereby maximizing the preservation of brand reputation and market position [7].

5. Conclusion

The advent of big data in social media has ushered in a revolutionary shift in marketing strategies, underscoring its undeniable potential and value. The application of strategies such as precision marketing, brand management, market trend forecasting, and crisis management highlights the significant role of big data in enhancing marketing effectiveness, optimizing brand image, and navigating market fluctuations. Nevertheless, challenges such as data privacy and security, data quality, and shortages in technology and talent remain substantial obstacles for businesses utilizing big data. Moving forward,

with ongoing technological advancements and the refinement of regulations, companies must further enhance their data management capabilities, cultivate specialized talent, and develop more agile and adaptive marketing strategies. Through continuous innovation and optimization, businesses can fully harness the value of social media big data to gain a competitive edge in the fiercely contested market. This study aims to provide a theoretical foundation and practical reference for companies in formulating data-driven marketing strategies, thereby advancing progress and development in the field of marketing.

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