

Sentiment Analysis and Strategic Considerations of KOL Weibo Comments

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Abstract: Key Opinion Leaders (KOLs) possess significant commercial value in terms of focusing on user consensus. However, many companies that adopt a KOL-oriented marketing strategy fail to achieve the desired business outcomes in their market activities. At this stage, it is necessary to reference the experiences of relatively successful KOLs to address the shortcomings in their "precise efforts." This study utilizes web scraping tools and text mining techniques to conduct sentiment analysis on the Weibo content of Anchor A. The analysis ultimately reveals that Anchor A's Weibo marketing lacks long-term, scientifically informed planning. The anchor does not have a clear understanding of their own role, nor do they appreciate the importance of Weibo marketing content. There is a failure to capture potential users and to deeply consider user satisfaction and emotions. This study aims to maximize the commercial value of KOLs in marketing activities through sentiment analysis of Weibo marketing content.

Keywords: Key Opinion Leader (KOL), Weibo marketing, sentiment analysis.

1. Introduction

Key Opinion Leaders (KOLs) have large fan bases that can influence surrounding individuals to engage in transactional behaviors, making them critical players in the field of online marketing. Their content helps potential consumers gain insights into products. Modern social e-commerce originates from social platforms, with Weibo being one of the most representative platforms in China. Currently, Weibo has transformed from a traditional social platform into a social e-commerce platform. Whether considering website traffic, data dimensions, or online marketing revenue models, Weibo has become the primary marketing hub for companies in China that possess big data technology. Due to Weibo's strong social nature and diverse front-end formats (mobile and PC versions), "Weibo marketing" has been a hot research topic in online marketing since its inception.

Simultaneously, self-media platforms such as WeChat, Weibo, and QQ play an essential role in the daily lives of Chinese people, leveraging their advantages in timeliness, convenience, interactivity, and user autonomy[1]. These platforms are gradually becoming an integral part of daily life. Big data technology in social media meets users' personalized sensory experiences, and as it continues to be integrated across major social platforms, KOLs' posts are becoming increasingly significant in marketing and economic domains. The China KOL Marketing Strategy White Paper published by the domestic giant IMS New Media Commercial Group states that the essence of the development trend of KOL marketing is the evolution of media itself[2]. With the shift in the main form of online media,

KOL marketing media are continually adapting their operational models to become more mainstream, creating opportunities for KOLs to promote and advertise products, thus giving rise to various KOL marketing methods. The value of KOLs in marketing has surged. Initially, KOL marketing was evident in traditional media such as TV commercials, and it evolved with the rise of the internet and social networks. In the era of mobile internet, KOL content and social engagement methods have diversified, and strategies have continuously innovated[3]. Selecting KOLs requires consideration of five dimensions: influence, relevance, audience feedback, industry evaluation, and individual image.

With the continuous advancement of internet technology, social e-commerce provides consumers with more convenient services for purchasing decisions. Additionally, KOL posts under social e-commerce function as advertisements. Social e-commerce platforms like Weibo can also be viewed as platforms for advertising information dissemination, and the interaction data of KOLs holds substantial commercial value. At present, while there is extensive academic research on advertising on Weibo, traditional Weibo product marketing content has nearly lost its value, and industry studies on the role of KOLs in Weibo marketing are scarce. Therefore, examining the impact of KOL posts on marketing effectiveness is necessary for keeping online marketing theories up to date. In practice, corporate marketing strategies require market research, yet the effectiveness of traditional methods is questionable. The data collected through web crawling technology is authentic and reliable, and Weibo's real-name authentication ensures the authenticity of users. By utilizing the SnowNLP library in Python to process textual information, user sentiment scores can be obtained, providing guidance for KOL online marketing.

2. Literature Review

2.1. Key Opinion Leaders and Weibo Marketing

Key Opinion Leaders (KOLs) are typically defined in marketing as individuals who possess more and more accurate product information[4], earn the trust and acceptance of most groups, and significantly influence these groups' purchasing intentions.

Experts and authorities promoting products for enterprises are referred to as “Key Opinion Leaders.” In marketing activities, KOLs usually provide more “information” to relevant groups and, due to the trust they earn, can even influence these groups' purchasing desires. Unlike general “opinion leaders,” KOLs often represent authority in a specific product field. Even if they are not highly active or frequently communicating with potential customers, they are still easily recognized and acknowledged. KOLs possess three typical characteristics:

1. Sustained Involvement: KOLs engage with certain products more deeply and for longer periods than others in the group. This gives them a more comprehensive understanding of the product, access to a broader range of information, more knowledge, and richer experience[5].

2. Interpersonal Communication Skills: KOLs are more sociable and articulate than the average person. They possess strong social skills and interpersonal communication techniques, actively participate in various activities, are adept at making friends, and enjoy discussing topics extensively. They are often the central figures for group opinion and information dissemination, exerting a strong influence over others.

3. Personality Traits: KOLs are open-minded, quick to embrace new things, and are interested in changing trends and fashion. They are willing to be early adopters of new products, aligning with the concept of early users in marketing.

2.2. The Connotation and Characteristics of Weibo Marketing

Weibo marketing refers to the use of Weibo as a platform for enterprises to achieve their marketing objectives. The general approach is that companies register a Weibo account and use text, images,

and videos as vehicles for consumers to learn about products. The advantage is the ability to convey the company's image to users and leverage the traffic of the open-source platform to promote products. Weibo marketing has the following three characteristics:

1. **Rapid Information Dissemination:** Weibo marketing relies on the Internet platform, enabling fast product promotion. Regardless of the consumer's demographic characteristics, as long as they are Weibo "users," they can receive product information. Unlike other social platforms like QQ or WeChat, Weibo does not require "friend" relationships for information dissemination, making the information release process more streamlined and allowing unrestricted user interactions.

2. **Diversified Product Release Modes:** The primary tool for disseminating Weibo content, the smartphone, has become an integral part of daily life. Unlike traditional e-commerce, Weibo marketing is adaptable to the pace of modern life, taking advantage of this omnipresence.

3. **Flexibility in Marketing Approach:** Weibo marketing allows companies to move beyond monotonous marketing methods. The convenience of using Weibo enables companies to quickly identify consumer needs and meet personalized demands. Although Weibo content is diverse in structure, Weibo marketing must align strategies with the platform's features to meet user requirements. From the perspective of opposites and unity, Weibo marketing also presents communication risks for companies. The proliferation of smart terminals and the diversification of Weibo content make it challenging for enterprises to attract traffic through Weibo marketing.

The primary "driving forces" of KOLs in Weibo marketing are "celebrities" and "internet influencers." The involvement of these figures in marketing introduces new growth opportunities for Weibo marketing[6]. Their strength lies in converting users into "fans" and, through long-term emotional engagement, establishing stable relationships that increase the likelihood of transactions with users.

3. Data Source and Research Findings

To better analyze Anchor A's Weibo marketing status, it is necessary to categorize the Weibo posts. The Weibo ICA classification framework proposed by foreign scholars in 2012 is primarily composed of information provision, relationship building, and behavior guidance. Based on this, Yang Xuecheng expanded the ICA content further: "Information provision" now includes not only product information but also brand information for popular KOLs; "Relationship building" typically involves provoking users' thoughts through questions and often includes common explanations and expressions of gratitude to followers; "Behavior guidance" is an essential part of Weibo marketing, generally covering product promotion, discount offers, and after-sales service.

3.1. Descriptive Statistics of Anchor A's Weibo Communication Performance

Table 1: Mean and Standard Deviation Statistics

Variable	Statistic	General Knowledge	Professional Knowledge	Emotional Communication	Product Interaction	Image Interaction	Co-building Activities
Retweets	Mean	230.6	235.4	1101.9	1099.0	4194.9	7942.0
	SD	45.8	41.6	296.4	297.4	2485.0	22278.9
	N	56	37	396	392	21	98
Comments	Mean	796.2	807.7	9039.2	103235.9	14339.4	964.6
	SD	463.9	490.3	1557.2	168.7	9622.8	495.0
	N	56	37	396	392	21	98
Likes	Mean	7565.9	7823.5	9039.2	115198.7	62781.9	494.9
	SD	3216.8	322070.7	85514.1	27696.3	34570.9	2348.4
	N	56	37	396	392	21	98

It is evident that image interaction posts receive the highest number of retweets, comments, and likes on Anchor A's Weibo, especially in terms of likes and comments. In contrast, general and professional knowledge posts have the lowest interaction levels.

The marketing activities on Anchor A's Weibo align with established marketing theories. In 1990, American marketing expert Professor Lauterborn proposed the 4C theory, corresponding to the traditional 4P marketing theory, redefining the marketing mix into four elements: Consumer, Cost, Convenience, and Communication. In the context of Weibo marketing, this theory emphasizes prioritizing user satisfaction, reducing user costs, fully utilizing mainstream payment platforms (e.g., WeChat, Alipay) to increase purchasing convenience, rather than merely planning channel strategies from the perspective of the Weibo account operator. Most importantly, it is about being user-centric and ensuring effective communication. Thus, the success of Anchor A's Weibo marketing can be summarized in three key aspects:

1. Attracting Users with Low Cost and High Value: Anchor A attracts users through affordable and high-value products, adding subtitles to short videos edited from live streams, which saves users time in understanding products.

2. Convenience in Purchasing: Anchor A stimulates purchasing desire with short videos and attaches purchase links in the post text, supporting payments via WeChat and Alipay, making it easy for users to place orders instantly.

3. Effective Communication: The communication in Anchor A's Weibo marketing is highly engaging. Although no celebrities appear in the short videos thus far, each post prompts users to "imagine" a certain celebrity's cosmetic product, which enhances product credibility.

3.2. Sentiment Analysis Method for Anchor A's Weibo Comments

The image interaction posts on Anchor A's Weibo extend the concept of social marketing. Social marketing involves using commercial marketing methods to achieve social welfare objectives or using social welfare values to promote commercial solutions. It requires balancing consumer needs, social welfare, and corporate benefits. Regarding the commercial value of image interaction posts, the lack of long-term, scientific marketing strategy and the absence of a balanced approach aligning with social marketing's corporate value indicate the need to decentralize decision-making and use data to identify problems and establish standards.

As previously noted, image interaction posts receive the highest numbers of retweets and comments. The author used web scraping techniques to extract and analyze comments from Weibo posts related to major public welfare events initiated by Anchor A. The total number of comments collected was approximately 25,000, with the source code provided in the appendix. The scraping process results are shown in Figure 1.



```
warnings.warn(  
<?xml version="1.0" encoding="UTF-8"?><!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Crawling s  
comments on page 6  
E:\\lib\\site-packages\\urllib3\\connectionpool.py:997;InsecureRequestWarning; Unverifi  
warnings.warn(  
<?xml version="1.0" encoding="UTF-8"?><!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 s  
Crawling comments on page 7
```

Figure 1: Web Scraping Process for Anchor A's Weibo Comments

Since the source code collected by the web scraper is rendered, it contains a lot of garbled characters. Further regular expression extraction was performed to retrieve the clean text comments

from the source code, which were then written into a digital document. Using Python's SnowNLP library, which supports sentiment analysis, the text was analyzed through its core code to determine the sentiment of each comment. The basic model used is the Bayesian classifier, which, for a classification problem with two categories (c_1 and c_2), considers independent features ($w_1 \dots w_n$). The fundamental process for category c_1 in the Bayesian model is as follows:

$$P(c_1|w_1, \dots, w_n) = \frac{P(w_1, \dots, w_n|c_1) \cdot P(c_1)}{P(w_1, \dots, w_n)}$$

Where:

$$P(w_1, \dots, w_n) = P(w_1, \dots, w_n|c_1)P(c_1) + P(w_1, \dots, w_n|c_2) \cdot P(c_2)$$

For this study, each comment segment was read and analyzed for sentiment values, generating a score between 0 and 1. A score above 0.5 indicates a positive sentiment, while a score below 0.5 indicates a negative sentiment. The further the value is from 0.5, the more extreme the sentiment. The automated sentiment scoring process is shown in Figure 2.

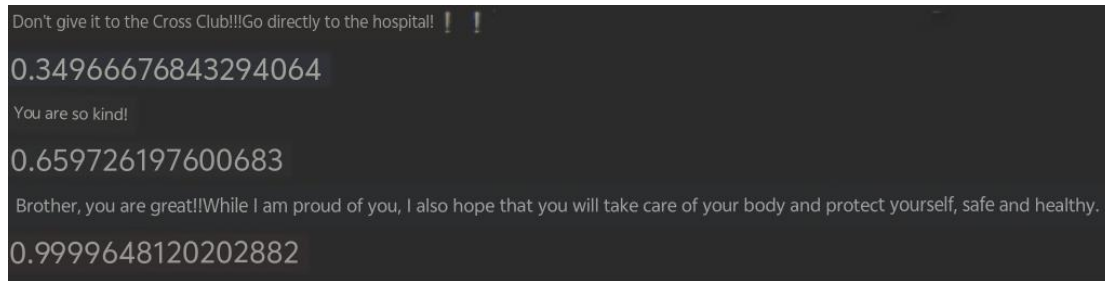


Figure 2: Automated Sentiment Scoring Process

Using Python's matplotlib library, the distribution of sentiment scores is displayed as a histogram (see Figure 3).

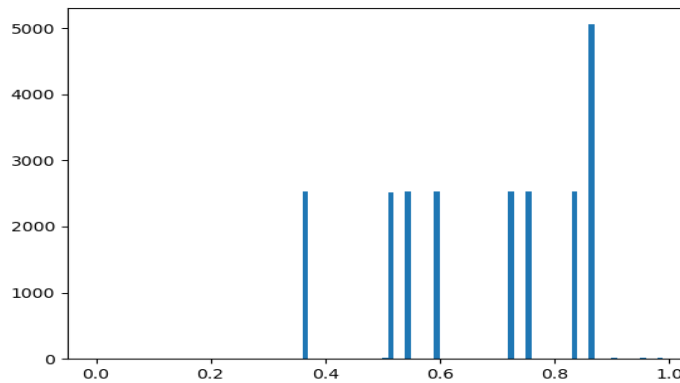


Figure 3: Sentiment Scoring Histogram

The histogram shows that negative commenters make up 10% of the total, indicating the presence of “black fans.” Overall sentiment is relatively positive. The concept of “core users” is proposed in the context of internet product management—these are users who respond positively to corporate activities and form an important subgroup.

In summary, Anchor A's Weibo marketing lacks long-term, scientifically grounded planning. There is no clear understanding of the marketing approach, the importance of Weibo content is not

fully appreciated, potential users are not effectively targeted, and there is insufficient consideration of user satisfaction and emotions.

4. Managerial Implications

KOL Weibo marketing should shift from a customer-centric to a user-centric perspective, leveraging Weibo text data for decision-making and identifying target users. Taking Anchor A as an example, their Weibo posts are categorized into six types: general knowledge, professional knowledge, emotional communication, product interaction, image interaction, and co-building activities. The analysis shows that image interaction and product interaction texts have the greatest impact; therefore, companies should focus on collecting these types of content and establishing evaluation metrics to identify potential customers. Co-building activity texts receive a high volume of comments, suggesting that this type of content can be appropriately increased. Although general and professional knowledge texts are less attractive to users, they can be integrated into emotional communication and image interaction posts to make them more engaging. Therefore, enterprises need to clearly classify KOL content, use text analysis to identify target customers, and implement precise marketing strategies.

KOL Weibo marketing should emphasize the effectiveness of KOLs, focusing on building user consensus. The potential target customers are KOL followers who seek emotional identification. Emotional engagement lies in meeting the authentic emotional needs of followers and establishing a subtle connection with them through the KOL's affinity. For instance, Anchor A's emotional communication posts are well-received, following the approach of "engage first, then watch live streams," inviting followers to become part of their life and share life experiences rather than direct selling. This suggests that enterprises using KOL Weibo marketing should reduce hard selling and instead build relationships with followers through product features, using "sharing" as the basis to convey product information. Even if followers are not interested in the product, creating a "lifestyle experience" can encourage them to share the KOL's life, thereby driving engagement.

Weibo provides a two-way communication platform for KOLs and their followers, making genuine interaction crucial for marketing effectiveness. KOLs should post topics based on follower needs, stimulating resonance and interaction to generate data that helps the team understand their followers more deeply. Topic interaction can also identify "key opinion customers," facilitate fan growth, and manage follower emotions. KOL Weibo marketing must find suitable ways to engage followers, balancing the maintenance and management of emotions to establish long-term relationships. For example, in Anchor A's case, comment information is particularly critical; although it varies in quality, popular comments reflect the emotional needs of followers. The KOL team should pay attention to and address these needs to effectively maintain user emotions and achieve successful marketing.

5. Conclusion

The saturation of online traffic indicates that the dominant role of KOLs in online marketing will become increasingly prominent in the near future. This is driven not only by the times but also by the nature of social media. Text mining and analysis, which combine basic big data technologies such as web scraping and data analysis, propose four strategic approaches for Weibo KOL marketing: creative thinking with content as king; user-centric thinking to identify potential customers; relationship thinking to focus on building user consensus; and communication to manage and maintain emotions. The advantage of this approach is that it allows for the identification of potential target users and precise interactions, thereby shaping the social image of KOLs and achieving long-term marketing goals on social media platforms. The COVID-19 pandemic has accelerated the rapid

growth of social media. In this trend, the strength of social engagement in online marketing will determine the development of enterprises in the foreseeable future. Although KOLs hold advantages in social engagement, they must remain user-centric, pay attention to details, and set long-term goals.

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