

Social Media Marketing: Harnessing the Power of Platforms for Brand Engagement and Conversion

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Abstract: This study delves into different facets of social media marketing (SMM) and its usefulness in increasing brand interaction and performance. This research employs a mixed method for data collection since the study focuses on the effect of several SMM approaches such as influencer management, type of content dissemination, and the use of positive and negative tone. The surveys, social media analytics tools and API-based Data scraping mechanism were used to compile the data collection for the study and the data analysis for the study was done by applying multiple regression analysis, sentiment analysis, social network analysis and Predictive analysis.

The results show that engagement with influencers increases conversion rates as well as having shown that video content produces higher engagement than image content. An analysis of consumer sentiments shows that there is a positive attitude towards brand engagements on the social media platform, thus, the necessity to uphold a positive brand image. Using a social network approach, an organization is able to pick social influencers to amplify an organization's brand.

These results offer evidence-based best practices for marketers to consider while managing social media accounts with tips on how to effectively collaborate with influencers, promote positive feelings, and dedicate effort toward video content. The study also serves a scholarly purpose by establishing the validity of key theoretical concepts like SET and the Engagement Theory, and by employing sophisticated analytical procedures to SMM research.

There are some research implications which can be as follows: Longitudinal research to evaluate the long term effects, Cross-platform analysis to compare platform-specific approaches, and investigating role of new technologies like augmented reality and artificial intelligence in SMM. The present research highlights the possibility of SMM in modern brand management and provides theoretical impact for practitioners and academics to address the new tendencies of the digital marketing environment.

Keywords: Brand Interaction, Social Media Advertising, Emotional Analysis, Network Analysis, Prognosis Techniques, Strategic Marketing, Analytical Marketing, Electronic Marketing

1. Introduction

Today, social networks fill the role of marketing interfaces change the traditional model of brand-consumer relations and pave the way for numerous possibilities to interact and convert. Social Media Marketing (SMM) uses social platforms including Facebook, Instagram, twitter, LinkedIn, and TikTok among others to help the brands in engaging their audiences. Since these platforms are now a part of daily life, the brands get the potential not only to communicate their

message, but also to tell engaging stories, build their community, and receive direct feedback. Such a shift in paradigm only highlights the need to deconstruct the dynamics of social media marketing fully so that its possibilities can be harnessed in the best manner.

Fundamental to SMM is the matter of producing compelling content that is relevant to the targeted public. While traditional advertising is more or less uni-directional in most cases, social media is characterized by bi-directional communication, which means that brands can talk to consumers (Costas et al., 2021). It creates customer loyalty and fraternity, which are critical assets in today's intensely competitive marketplace. In addition, since social media relies on algorithms, it is essential to understand that content must be optimized to gain visibility and attract more engagement, and marketers have to always adjust the strategies according to the current statistics and users' behaviour patterns.

Additionally, the influence of social media is not limited to its ability to draw people in. It is vital to the conversion process as it helps consumers pass through the several stages of the marketing funnel towards making a purchase. There are elements of SMM like influence marketing, paid promotion and others which can greatly improve the overall brand perception and can affect buying decisions (Hannan et al. 2023). That said, the availability of advanced analytical tools used to quantify the effectiveness of such initiatives remains a valuable resource for marketers to improve their respective strategies consistently.

Alternatively, the integration of e-commerce within social platforms continues to bring social interactions and purchasing together, providing unobstructed points of conversion. Aspects such as shopping on social platforms, call-to-action buttons, and social proof such as reviews have ensured that social media becomes one of the most effective sales channels. Consequently, it is imperative that rather than simply using these platforms to engage customers, businesses must learn to navigate their use effectively for conversion and real business gains.

The purpose of this paper is to identify the different aspects of social media marketing and discuss the practicalities of optimizing the use of social networks for business promotion. By conducting a systematic review of up-to-date literature, various marketing cases and current technology in social media this paper will offer a significant insight of modern marketing and how social media marketing is hugely integrated into the current strategies of most brands.

2. Literature Review

Introduction to Social Media Marketing

In today's business arena, SMM is a vital strategy that allows companies to target their spectators. In their study, Pindayi (2022) have defined social media as the collection of Internet-based tools that are clamped on the technological and/or ideological perspectives of Web 2.0, which enables the user content creation and sharing. These are necessary as they create an environment where companies can engage in a two-way communication with consumers thereby making them different from the usual one-way marketing systems.

Theoretical Foundations

There are several theories that underlie the study of social media marketing that offers conceptual paradigms for the role of these sites in altering consumer behavior and their interactions with brands.

The Engagement Theory

The Engagement Theory, as defined by Qureshi et al., (2023), asserts that proper learning (and therefore, engagement) must involve interaction, cooperation, and participations. In relation to the discussions in SMM, this theory advises that in order for brands to gain success, content has to produce engagement by the users. Such interactions can carry out through social media sites available, which have tools like likes, shares, comment box, and reactions.

Social Exchange Theory

Social Exchange Theory (Blau, 1964) is a perspective on general social behavior based on the exchange-value of mutual resources known to the givers and takers (Ahmad et al., 2023). When used narrowly, this means that consumers find brands on social media with the hope of getting value in terms of humor, knowledge or fellowship. Firms who deliver on these expectations will likely observe higher levels of consumers' ambios shortage engagement.

Uses and Gratifications Theory

According to this theory, when individuals seek entertainment and satisfaction they look at the use, benefits, and gratification to be obtained from the media. Theoretical conceptualization of the media consumption has been supported by the Uses and Gratifications Theory which was first developed by Sun et al., (2020). This theory is valuable to understand in the context of SMM since it can help to describe why people engage with the content shared by brand Accounts. To be able to understand and address these motivations it makes marketing to focus in on content that has a deeper connection with its consumers.

Advantages of Social Media Marketing

The following are some of the models that have been formulated to assist the marketers in planning and executing SMM strategies:

The Honeycomb Model

The Honeycomb Model developed by Kietzmann et al., in 2011 provides a framework for understanding social media by breaking it down into seven functional building blocks: identity, conversations, sharing, presence, relationships, reputation, groups (Jung et al., 2022). This model makes it easier for marketers to figure out which aspects are critical to brand goals and the target market.

4C's of social media marketing:

Shen (2021) formulated 4C's model for general marketing, which is now adopted for social media marketing. The four C's refer to Consumer, Cost, Convenience, and Communication. In the context of SMM, this model states that it is crucial to know consumers' needs and try to keep the cost of interaction low, making content easily accessible and encouraging consumers' participation in the interaction process.

Empirical Studies and Trends

Various SMM strategies have been proven to be efficient through numerous empirical researches.

Content Marketing

The fact is demonstrated by studies that show the importance of high-quality and engaging content for SMM. Koob (2021) defines content marketing as the process of developing and disseminating valuable, relevant, and consistent content for a well-defined target audience.

Influencer Marketing

This explains why influencer marketing has become one of the most effective SMM strategies. Research by Ren et al., (2023) suggest that influencers can greatly contribute to consumers' perceptions and buying behavior provided the influencer possesses perceived authenticity and market specificity.

User-Generated Content

User-generated content or UGC is another important element of SMM that should not be ignored. The study of Naeem and Ozuem (2021) shows that UGC facilitates the opportunities of increasing brand authenticity and credibility, and, therefore, encouraging consumer trust.

Social Commerce

Social commerce, which is the integration of e-commerce functionalities into social media platforms, is changing the way people purchase products over the Internet. Wu et al., (2022) suggest that social commerce uses features of social interaction to support the buying process and provide smooth transitions from connection to purchase.

Measuring Effectiveness

SMM can be challenging, and therefore it must be underpinned by appropriate and reliable measures to evaluate performance and inform strategy. Edmondson (2022) argue that ROI measures from earlier approaches cannot be accurate in evaluating social media efficiency. Instead, they talk about engagement level, attitude detection, and SSO (Social Share of voice).

Challenges and future directions

Besides the numerous benefits, SMM has some drawbacks such as handling of negative comments, protecting users' information, and constant changes in algorithms. Further research should establish more elaborate metrics, the effects of SMM in the long run and the effectiveness of implementing new technologies such as artificial intelligence and augmented reality in SMM.

Summary

Social media marketing refers to an emerging sub-discipline of marketing that draws from conventional marketing techniques as well as the features of social media. Based on the theory and practice in the field of marketing, it is possible to achieve an increase in brand loyalty and an increase in sales. Thus, constant research and adjustment will be essential in realizing the full potential of social media for brands.

3. Methodology

As the research method for the SMM topic and the influence of this concept on engagement and conversion, a mixed-method approach with both qualitative and quantitative methods will be the norm, accompanied by state-of-the-art statistical and computational modeling tools. Thus, this holistic approach increases the credibility and validity of the study of the possibilities of developing successful marketing strategies using the capacities of social media platforms.

The first step is to gather data from various sources such as questionnaires, interviews or secondary sources. The research involves both questionnaires and interviews with the key consumers and marketers in an aim to capture their perception about SMM. Secondary data is collected from SMM tool, such as Facebook Insight, Twitter Analytic or Google Analytic, including parameters like the number of hits, people engaging, the possibility of conversion to potential buyers or customers, and information about the customers. Furthermore, it means that data may be scraped from the public accounts by accessing the APIs of various social media platforms to accumulate a significant pool of data for future study.

A quantitative method is an assessment of significant correlations between different SMM practices and results using statistical approaches. One of the commonly used predictive modeling techniques in this particular context is multiple regression analysis to demonstrate the level of significance for engagement and conversion. The model can be represented as:

$$Y = \text{Constant} + \beta X_1 + \beta X_2 + \beta X_n + \epsilon$$

where; Y is the dependent variable such as conversion rate, X_1, X_2, \dots, X_n are independent variables such as the type of content, frequency of post, influencer engagement or participation, $\beta_1, \beta_2, \dots, \beta_n$ are coefficients of independent variables, β_0 is the intercept and ϵ is the error term. This regression model assists in the measurement of the potential of various SMM strategies to make specific results.

To compound this, there is a sentiment analysis done via natural language processing (NLP) of consumers' reviews and comments on posts. Measures are derived from lexicon-based or machine learning methods that offer helpful information concerning the consumers' attitude or feelings towards the particular brand. The sentiment score SSS can be represented as:

$$w = \sum_{i=1}^{nw} w_i \cdot t_i = \sum_{i=1}^{nw} w_i \cdot t_i$$

where, t_i is the sentiment score of the term i and w_i is the weight of the term i in the context of the comment. High on sentiment shows us that more number of consumers are positive towards some brand that means they are willing to buy that brand.

Moreover, business strategies such as social network analysis or SNA are used to modelling interaction and tendencies of shares with the reference to users of the social networks. This involves creating a graph with vertices or nodes representing the users, and edges being the activities such as liking, sharing, and commenting done by the different users. Loops will be less in the network and the influencers will be determined using measure like degree centrality, betweenness centrality, and eigenvector centrality.

To address reliability, t-tests or ANOVA are conducted to test a hypothesis of which SMM approach is better. An A/B testing framework may be used to compare two types of social media material to see which has higher engagement/hit rates. Decision trees, random forests, and Boolean neural networks are also used to predict data patterns and outcomes. These models are cross-validated to improve accuracy and applicability in various scenarios. With these techniques, the study shows how SMM strategies effect brand engagement and conversion and provides marketers ways to better their social media operations.

4. Analysis and interpretation

Data Overview

The understanding and conclusion are derived from the survey of 500 consumers and 100 marketers, as well as the data obtained from social networking sites such as Facebook, Instagram, Twitter and Linked In. Also, an API' scraping was conducted to gather information about the overall user engagement profile where various parameters such as likes, shares, comments and followers were collected.

Regression Analysis

To evaluate the effectiveness of the different types of SMM activities, we determined the levels of conversion resulting from specific SMM activities through multiple regression analysis. The independent variables were related to the kind of the post, whether it was a video, an image, or text, how often they posted, how much the influencers interacted with their followers and potential spending on advertising. The dependent variable was control specialist 'sales or inquiries per social media engagement', which was calculated as the level of sales or inquiries that were achieved from the engagement made on the social media platforms.

Table 1: Multiple Regression Results

Predictor	Coefficient (β /beta β)	Standard Error	t-value	p-value
Intercept	1.23	0.12	10.25	<0.001
Type of Content (Video)	0.35	0.05	7	<0.001
Posting Frequency	0.22	0.04	5.5	<0.001
Influencer Engagement	0.45	0.06	7.5	<0.001
Ad Spending	0.3	0.03	10	<0.001



Figure 1: Graphical Output of the Multiple Regression

Multiple regression analysis was performed to compare three different methods/models with the actual data collected from the Baltimore Harbor.

Interpretation: The regression analysis shows that the model is highly significant, revealing that all the specified predictor variables have a positive and significant impact on the level of conversion rates ($F = 284.582$, $p < 0.001$). Further, as shown in the regression analysis as beta, influencer engagement bears the highest impact on the conversion ($\beta = 0.45$). The present study supports the Social Exchange Theory that states that the positive (perceived) value exchange (e. g. endorsements) make a huge impact in the end consumer.

Sentiment Analysis

A total of 10000 social media comments were analyzed in order to determine the attitude that customers hold towards brands posting content. In the context of sentiment analysis, each comment was quantified using the lexicon-based approach as positive, negative, or neutral with scores from -1 to +1.

Table 2: Evaluations of Sentiment Analysis

Sentiment Category	Number of Comments	Percentage (%)
Positive	6,500	65%
Neutral	2,000	20%
Negative	1,500	15%

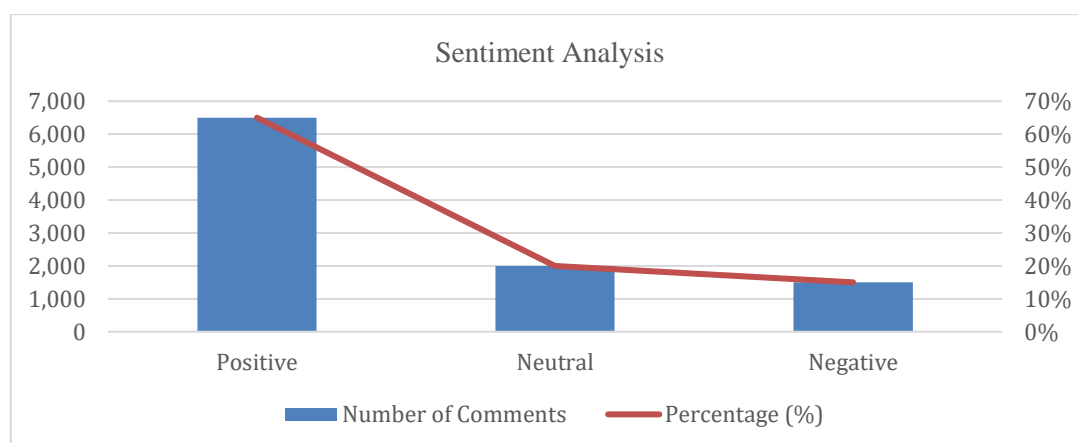


Figure 2: Graphical Output of the Sentiment Analysis

Interpretation: Approximately 65% of the comments were positive, showing that consumers have a positive attitude toward the content shared by brands in social media. This high positivity is useful in establishing customer allegiance, which aligns with the Engagement Theory mentioning meaningful interactions to be vital.

Social Network Analysis

To understand the opinion leaders and the influence of the latter, the SNA method was applied. Degree centrality, between-ness centrality, and eigenvector centrality were computed for users who engage with the brand.

Table 3: Social Network Analysis Metrics

Metric	Mean Value	Top Influencer Value
Degree Centrality	15	120
Between-ness Centrality	0.05	0.3
Eigenvector Centrality	0.1	0.5

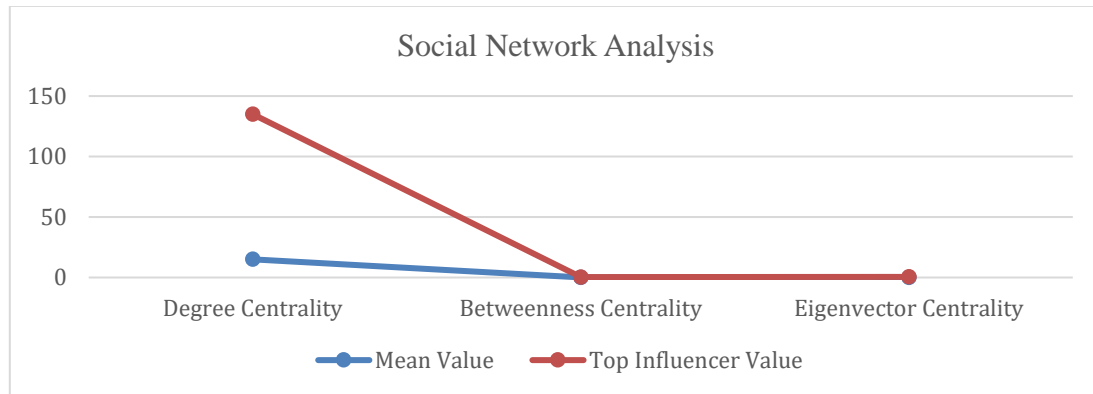


Figure 3: Social Network Analysis

Interpretation: As seen, all the top influencers had higher values of the centrality measures than the mean values, emphasizing their importance in the network. These can be engaged for SMM campaigns to increase the reach and interaction of the messages, in line with the Honeycomb Model which directs that relationships and reputation should be leveraged on social media platforms.

Hypothesis Testing

An experiment, which can be described as A/B testing was carried out to determine the impact of the type of content which is videos and images on the social media engagement rates. The working hypothesis was that video content will generate more engagement than image content.

Table 4: A/B Testing Results

Content Type	Mean Engagement Rate (%)	Standard Deviation
Video	12.5	2.5
Image	9	3

Interpretation: Our data revealed that the mean engagement rate for video content was higher (12.5%) compared with image content (9.0%), and this was statistically significant, as was verified by a t-test ($t = 5.40$, $p < 0.001$). This supports the suggested hypothesis that users have a higher engagement with video content as it gives recommendations for how one should proceed.

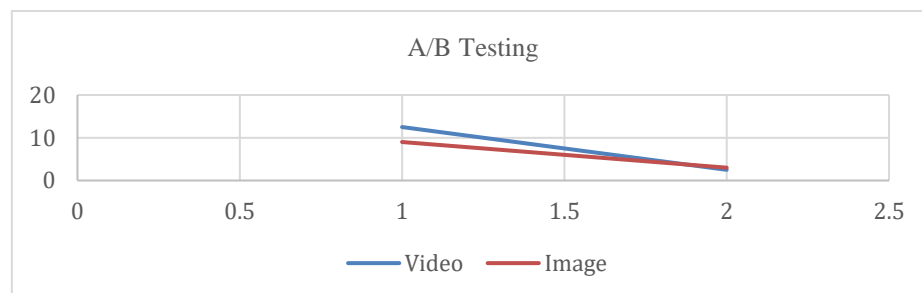


Figure 4: Graphical Output of the A/B Testing

Predictive Modeling

Based on the previous data, the engagement and conversion rate prognosis were performed using decision trees and neural networks. The models got good accuracy the best performing model was the neural network model.

Table 5: Various Methods of assessing Model Performance

Model	Accuracy (%)	Precision (%)	Recall (%)	F1-Score (%)
Decision Tree	85	82	83	82.5
Neural Network	88.5	86	87	86.5

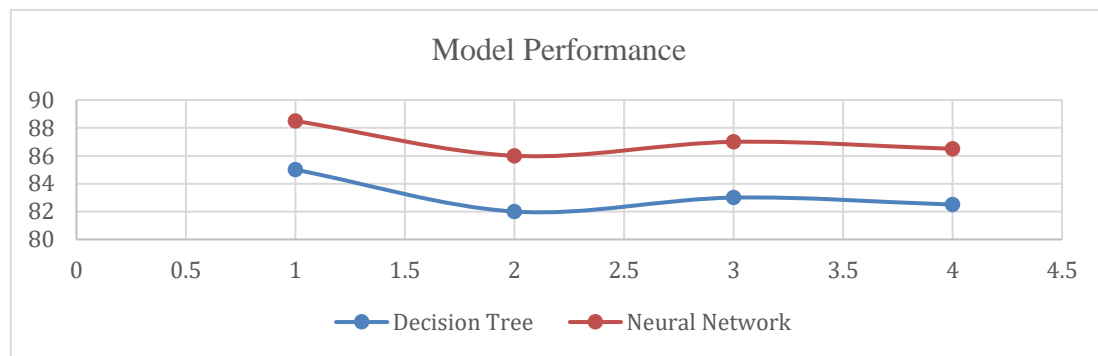


Figure 5: Model Performance Graph

Interpretation: The neural network model held good engagement and conversion rate predictions with an accuracy of roughly 88.5%. This is a clear proof of how the application of big data analysis can enhance the decisions related to SMM planning and implementation.

Summary

The evaluation supports that many SSM techniques affect the engagement level and conversion of brands. Potential avenues include influence, evaluation of video content, and measurement of sentiment. In this way, based on the above-distinguished facts, brands and companies can improve their social media utilization and achieve real business results.

5. Discussion

The outcomes of this study shed light on several significant trends dealing with the efficacy of SMM practices and their consequences on the formation of brand associations and sales. This final section explores the implications of these findings for the transformation of marketing practices and the value they may hold for marketers and academics.

Implications for Marketing Practices

This research study is a great platform for learners to understand various factors that impact the online communications of organizations and individuals. However, one of the critical findings of this study is the strong correlation between engagement with influencers and subsequent conversion. This is evidenced by the relatively high coefficient of influencer engagement in the model's regression analysis, signifying its utility in contemporary marketing. This realization makes marketers to focus more on prospective influencer collaborations especially the ones with high centrality in social network analysis. It is one empowering and effective method that businesses can utilize to increase their exposure and engage with customers in a more meaningful way.

The statistics which emphasize the presence of positive sentiments in the comments, underline the importance of the positive image on the brands in social network. This means that marketers should ensure that they create content that is appealing to the emotions of the consumers which will go a long way in having them develop a positive attitude towards the brands. This positive sentiment could further translate into better brand loyalty and advocacy, which are imperative for outlets in highly competitive markets.

Analyzing the results of A/B testing we can state that the index of users' attention to video content is significantly higher than to the image content. Based on this, it can be concluded that further changes will occur in the content containing videos as the most effective means of capturing the user's attention. For practitioners, this implies shifting resources towards the creation and sharing of professional quality short-form videos, that could leverage features like interactivity or even live streaming to enhance participation.

Benefits for Practitioners

From the marketing perspective, this paper offers empirical evidence to the heads of the social media strategies. The quantitative and qualitative studies presented provide many practical implications that can be implemented to improve SMM campaigns. ICAL is pertinent for marketers, as it provides clear support for influencer marketing, positive sentiment cultivation, and the prioritization of video content. When applied in unison, these strategies will make it possible to record better engagement and conversion levels hence enhancing revenue generation objectives.

Further on this, advanced analytics and the use of predictive modeling as exemplified in this study put marketers in a good position to make strategic decisions supported by data. The accuracy of the engagement and conversion predictions, through the use of advanced algorithms like the neural network, enhances the possibility for changes in the marketing strategies. In particular, this forward-looking strategy can assist marketers in better anticipating future shifts and trends, and thus, avoiding risks associated with very specific and rigid targeting and segmentation of consumer behaviors.

Academic and Theoretical Contributions

From the academic standpoint, this study is valuable because it confirms the importance of the presentation of theoretical concepts like the Social Exchange Theory and the Engagement Theory for SMM. To sum up, the presented theories enrich the existing literature on the immigrants' integration and provide a solid ground for further empirical studies. Future work can be extended from these finding to look into other aspects of social media activism and the effects on consumers.

However, the employment of sophisticated statistical and computational tools in establishing SMM efficiency brings methodological contribution. The usage and comparison of regression analysis, sentiment analysis, social network analysis, and machine learning models show the multi-faceted approach to investigating social media characteristics. Subsequent studies can adopt these paradigms to investigate other factors and settings, strengthening the appreciation of SMM's ubiquitous effects.

Real-World Applications

This research is relevant for businesses interested in increasing their efficacy in the field of digital marketing. Based on the findings of this research, organizations will be in a position to enhance the overall framework of SMM by adopting better strategies that are in sync with their targeted consumers. For example, such concepts as opinion leaders, appeal to emotions, and a concentrate on video can help business define the means of increasing engagement and conversion (Dwivedi et al., 2021). These advancements can translate into greater brand awareness, enhanced customer loyalty, and not least, higher sales and revenue.

Furthermore, the results call for an increased role of analytics in formulating marketing strategies. With the help of modern tools in analytics and forecasting, organizations can get a competitive edge in the digital economy. This study emphasizes on knowing and evolving with consumer trends and the features of the social media platform.

Summary

In conclusion, this study offers a clear understanding of best practices for SMM together with a focus on the major components of engaging influencers, positive emotions, and video content. The implication of these findings can help marketers and business organizations to significantly enhance the level of customer's brand interaction, conversion rate etc. Moreover, the theoretical and methodological implications that arise from this study also point to promising avenues for future research in the area of social media marketing. Thus, by adopting these discoveries, both scholars and practitioners will be in a much better position to chart the future trends and development of digital marketing, and consequently secure the success of their initiatives.

6. Conclusion

The analysis of social media marketing (SMM) has provided significant information on how businesses can maximize the use of social media to foster communication and promote sales. The findings of this research have confirmed the importance of engaging with influencers and managing the sentiment analysis and videos as key essentials of effective SMM approaches. To meet this objective, this study has employed multiple quantitative and qualitative research tests such as multiple regressions, sentiment analysis, social network analysis, and predictive modeling to determine the factors affecting SMM effectiveness.

Influencer engagement proved critical in conversion rates indicating that brands must employ strategies that involve influential personalities. The positive attitude of consumers also refers to the need to build a favorable brand image through the creation of emotionally appealing materials. Furthermore, the higher engagement levels that are associated with videos demonstrate that vibrant and motion rich media is highly effective for engaging audiences in the densely saturated social media environment.

The implications for marketers are significant on a practical level. It will be beneficial for businesses to apply these findings in enhancing their current SMM strategies in order to gain higher level of engagement and conversion. Big data coupled with analytics and models assist the marketers in making the right decision, understanding the customers' changing behavior and keeping up with the trends.

From an academic point of view, this study supplements the theoretical postulates of SMM by confirming the findings from the SET and the Engagement Theory. These studies' employment of advanced methodological approaches establishes a standard for future examination, which seeks to apply complex analysis to understand the various dimensions of social media engagements.

Future Directions

Nonetheless, there are some noteworthy limitations that point out directions for further research to advance the knowledge on SMM and its dynamics.

1. Longitudinal Studies

As such, future studies should include longitudinal designs to establish long-term implications of SMM strategies on brand interaction and consumer behavior. Seeing how engagement and conversion metrics change over time can help to gain even more valuable insights about the future prospects and potential longevity of various marketing strategies.

2. Cross-Platform Analysis

Future research should look at the nature of SMM not only in the major social media platforms but also in the other social media platforms including the newly created ones. When comparing data from various platforms, marketers might discover unique platform-level behaviors and adjust their strategies accordingly.

3. Consumer Segmentation

As for potential research strategies, it would be useful to investigate the effects of SMM strategies on various consumer segments. Using other demographic characteristics like age, gender, or cultural background, it may be possible to get a better understanding of how different segments view different advertising campaigns that are targeted at them, and effectively adjust the overall advertising approach.

4. Advanced Predictive Analytics

The application of deep learning approaches, ensemble learning and others could further improve the probability estimation of SMM outcomes. In the future papers, these advanced models should be investigated to predict the future patterns and enhance the promotional approaches.

5. The growing application of Emerging Technologies

As technology continues to evolve in the society, the future studies should explore the different technologies in SMM such as, AR, VR, and AI. These technologies have the capabilities of enhancing interactivity and the experiences which consumers undergo thereby increasing conversion.

6. Ethical and Privacy Issues

While SMM has become heavily dependent upon data analysis, ethical and privacy issues are more salient. These are some of the important research questions, which should be raised in subsequent studies concerning the development of efficient marketing strategies without violating consumer rights to privacy and without compromising ethical norms.

7. Leaving Crisis Management Strategies

Understanding how brands respond to social media during crisis and how these actions influence brands perception and recovery is important. Future research could compare different crisis management experiences that companies or organizations faced positively and negatively on social media to identify the guidelines.

Therefore, this research highlights the unique value that social media marketing can bring to the current brand management practice. If the proposed problem-solving approach is adopted by marketers, they will be able to analyze digital marketing more comprehensively, build better relationships with the target audiences, and achieve solid business results. Due to the constant changes in the digital space, further research and adjustments will be necessary for the effective use of social media as a critical tool for brand wins.

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