Unveiling the Influence of AI-Social Fusion: Enhancing Consumer Community Engagement and Advertising Dynamics

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Abstract — *In the era of digital transformation, the integration of AI with social media platforms is reshaping advertising strategies and community engagement. This study investigates the fusion of AI and Social Network Sites, revealing its potential to transform advertising dynamics and foster genuine connections within digital communities. Through qualitative surveys, it uncovers how AI influences user interactions, personalizes content, and affects community dynamics. The findings suggest that AI-Social Fusion could significantly enhance advertising precision and leverage digital communities to optimize campaign effectiveness. This research contributes to the discourse on digital advertising and highlights the socioeconomic implications of AI-driven innovations in online communities.*

Keywords: Artificial intelligence, Social Media, Digital Advertising, Fusion

INTRODUCTION

In today's modern world, the omnipresence of Social Network Sites hereinafter SNS, and the power of artificial intelligence, hereinafter AI, have altered the way we perceive, interact with, and consume information. The convergence of these powerful tools represents a paradigm shift in communication and advertising subtleties in the digital world. Social media has proven to be an effective tool for businesses to achieve their marketing goals and strategies, particularly in customer engagement, customer relationship management, and communication. [1]

Social Media Marketing (SMM) utilizes social media platforms to positively influence consumer-purchasing decisions through targeted engagement and content promotion [2]. As individuals increasingly utilize social media for exchanging and discussing products and services, businesses must incorporate social media into their marketing approaches to interact with customers and promote enduring connections. [3]

As the world is witnessing a swift evolution of Artificial Intelligence and the larger spectrums of people connecting via SNS, understanding the influence of these tools on advertising effectiveness and community engagement within the digital world is paramount. However, existing research predominantly focuses on individual aspects of AI or social media in isolation, overlooking the intricate interplay between these technologies in shaping advertising strategies and community interactions. In this vein, this research seeks to fill this gap by conducting a comprehensive analysis of how the synergistic integration of AI and social media platforms affects advertising effectiveness and community engagement outcomes.

The positive impact found in the analysis provides concrete support for advertisers in Morocco to exploit AI technology for improved advertising performance.

A. On traditional Media vs. New Media: Forms, Reach, and Consumer Perception

Acknowledging the distinct features of traditional media advertising provides valuable context for our study on AI-driven advertising and consumer engagement on social media platforms. This comparison allows us to appreciate the targeted and community-building potential of *AI-Social Fusion* within digital spaces.

Traditional media typically comprises television, newspapers, radio, and similar platforms. Firstly, advertising through traditional media channels is readily identifiable. For instance, television commercials aired during program breaks are unmistakably recognized as advertisements. Similarly, in print media like newspapers and magazines, advertising sections are discernible. Secondly, in contrast to advertising in new media, traditional media advertisements have a broader reach across diverse audience groups, albeit without specific targeting. Advertising through traditional media manifests in various forms, saturating our daily lives. This includes street posters, television, and radio commercials, as well as product features in magazines and newspapers, among other formats [4].

New media advertising, rooted in the internet, includes Sponsored Search, Display Ads, Email Marketing, Classified Ads, and Social Network Advertising. Emerging trends like internet celebrity endorsement on platforms such as TikTok and YouTube are gaining traction, leveraging fan loyalty for effective product promotion [4]. New media advertising primarily operates within the digital realm, leveraging the internet as its foundation. Examples of such advertising include Sponsored Search, Display Advertising, Email Marketing, Classified Ads, and Social Network Advertising. Online advertising can range from personalized, one-to-one communication through targeted emails to widespread exposure via display ads on prominent search engines like Google [4].

A rising trend in new media advertising is the endorsement by internet celebrities. These influencers, prominent on platforms like Instagram, TikTok, and Facebook, leverage their fame and loyal fan base to endorse products. This approach often outperforms traditional advertising methods, as fans trust the influencers they follow, leading to spontaneous purchases. Hence, brands see significant benefits from partnering with internet celebrities, yielding substantial returns on advertising investments. [5]

Traditional advertising saturates daily life through mediums like elevator ads, posters, and TV commercials, ensuring widespread exposure. However, this ubiquity may lead to visual fatigue and hinder trust and conversion rates due to contextual limitations, unlike new media. Despite the rise of new media, traditional advertising remains relevant, particularly in regions where factors like poverty and low literacy impede new media development [6].

The traditional media advertising industry has faced a significant decline due to the ascendance of new media advertising. Research indicates a growing consumer aversion to traditional ads, attributed largely to the internet's proliferation. Paradoxically, while the web has posed challenges, it has also created opportunities, with advancements in online advertising products and services offering enhanced targeting capabilities and improved measurement. Moreover, the Internet has expanded the reach of advertising channels to a broader audience, presenting potential advantages for marketers [6] [5] [4].

In this vein, Verena M. Wottrich and Hilde A. M. Voorveld emphasize that positive consumer attitudes towards ads, brands, or products increase purchase likelihood. Studies show that creative media choices are more effective in shaping consumer attitudes toward advertising and brands than traditional media. Social media, according to Shandana Zafar's research, effectively targets younger consumers [7]. Experimental findings suggest that advertising and brand evaluations mediate the impact of media choice on purchase intentions, with creative media leading to higher evaluations and increased willingness to purchase. The rise of new media challenges traditional media's dominance, prompting discussions about the need for adaptation to technological advancements to remain relevant. [4]

B. AI-Fusion for an enhanced customer experience

The diverse content formats available on social media, coupled with AI's information generation capabilities, provide advertisers with abundant opportunities. Preliminary data suggests this positively impacts advertising practices and consumer community engagement on social networking sites (SNS).

AI-Social Fusion stretches beyond specific marketing to affect the core fabric of digital communities. AI-powered recommendation systems, chatbots, and virtual assistants form user interactions, promote community development, and influence online conversation [8]. Therefore, understanding how AI-powered technologies influence community involvement and social dynamics is critical for navigating the complicated digital world. [9]

Several research investigations have been undertaken to explore the utilization of Generative AI tools in marketing, as shown by studies such as those conducted by [10], [11], [12], [13], and [14] as cited in [15]. Regardless of the growing significance of the convergence of AI with social media platforms, there remains a gap in our understanding of its implications for community engagement and advertising effectiveness. This gap underlines the need for empirical research to explore the multifaceted interactions between AI technologies and social media platforms within digital communities.

C. The intelligence of non-human neurons: towards an advertising revolution

Combining the neural networks of AI and the ubiquitous nature of social media platforms has shifted the rates of personalized and targeted advertising - i.e. the fusion of AI and SNS, where every click is quantifiable on a precise scale in real-time. Thanks to this approach, advertising campaigns can be fine-tuned and their impact measured instantaneously. This feedback loop, paired with enormous amounts of information, offers an ideal environment for artificial intelligence, which can optimize performance well beyond human capabilities [16].

Social media, on the other hand, encompasses online platforms and tools that empower users to generate, share,

and engage with content. These platforms facilitate various forms of interaction, including social networking and content sharing, enabling individuals and businesses to partake in promotional endeavors such as advertising, influencer marketing, and brand advocacy. [16]

The preliminary data show that integrating AI into social media platforms has enabled unprecedented levels of personalization and targeted advertising. AI algorithms analyze vast amounts of user data to tailor content and advertisements to individual preferences, behaviors, and demographics. This level of customization has the potential to enhance user experience and drive higher engagement rates. However, it also raises important questions about privacy, algorithmic bias, and the ethical implications of AI-powered advertising. [9]

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METHOD

D. Presentation of the study

This study aims to assess how AI-Social Fusion affects consumer community engagement and to identify the best advertising practices recommended by consumers. Through qualitative research, it examines the influence of AI-driven advertising on user engagement and seeks optimal approaches to maximize advertising effectiveness and community engagement outcomes.

E. Data Collection and Participants

In selecting participants for the study, specific criteria were established based on the objectives outlined in the questionnaire. These criteria encompassed demographic information such as age, gender, occupation, and education level, as well as participants' active engagement with social media platforms listed in the questionnaire.

The rationale behind these criteria was to ensure that the selected sample represented a diverse range of perspectives and experiences relevant to the research objectives. For example, age and occupation were considered to capture variations in generational attitudes towards AI-driven advertising, while the listing of social media platforms aimed to include participants who were actively engaged in digital communities.

To maintain transparency and consistency in the selection process, potential participants were screened based on these criteria during the recruitment phase. This involved verifying participants' eligibility and confirming their willingness to provide detailed responses aligning with the research objectives. Therefore, the questionnaire garnered responses from a sample size of 60 participants.

It is important to acknowledge that while these criteria guided the selection process, there may be limitations associated with their application. For instance, the sample may not fully represent all demographic groups, and the selection of social media platforms may not capture the entirety of participants' online activities. However, efforts were made to address these limitations by ensuring diversity within the selected sample and by acknowledging any potential biases in the interpretation of the findings.

F. Research Design

The research design mainly depended on qualitative survey methodology to track nuanced insights and capture perspectives from a diverse range of consumers in Morocco. By employing this approach, which included asking open-ended questions to identify the nuances in answers, the study aimed to elucidate the complex ways in which the fusion of AI and SNS can contribute to better targeting of consumers to help announcers thrive in the market. Along with content analysis, this method allows a comprehensive understanding of participant perspectives and behaviors, shedding light on the intricacies of AI-Social Fusion's impact on consumer engagement and advertising effectiveness.

The questionnaire design was informed by a thorough review of existing literature on AI integration in social media advertising and community dynamics. Key themes and variables identified from the literature were used to guide the formulation of specific open-ended questions aimed at exploring participants' attitudes, behaviors, and observations related to AI-driven advertising and community engagement.

RESULTS

Contrary to what has been assumed, the preliminary data revealed unpredicted insights about the effectiveness of targeted advertising algorithms in creating and engaging communities. The study anticipated that targeted advertising algorithms primarily attract users with similar demographic profiles or interests, and the most dominant SNS is revealed to be Instagram. However, after careful analysis of the gathered data, it has been discovered that these algorithms are also effective in bringing together users with diverse backgrounds and interests who share common engagement patterns with the advertised content. This unexpected finding suggests that AI-driven algorithms not only enhance targeting capabilities for advertisers but also play a crucial role in promoting inclusive and dynamic communities on social media platforms.

1. Study focus 1: AI-Driven Advertising on Social Media

The study focus aims to measure the frequency with which individuals are exposed to advertisements while using social media platforms and to assess the level of engagement with ads disseminated through algorithm-powered stories or posts on social media platforms. As well as to understand users' perceptions of the relevance of advertisements encountered on SNS.

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[1] A Virtual Community is an aggregate of individuals and/or business partners (in connection with one or more organic communities), that interacts on a shared (or complementary) interest and in which the interaction is implemented by a common language and eventually a possible common paralanguage, led by some protocols or shared norms. This is realized at least partially in a digital common space and is supported and/or mediated by the Internet or another ICT system (which can be synchronous, asynchronous or hybrid).

Fig. 1: Number of participants by category of advertising exposure, behavior and engagement.
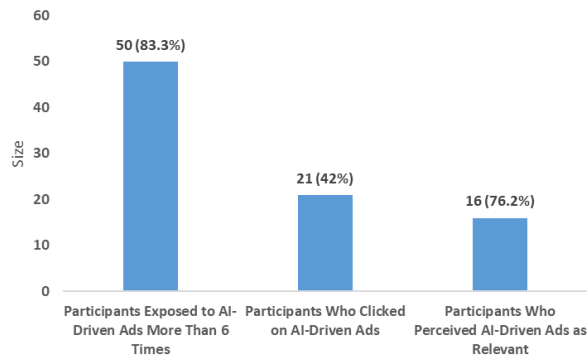
This information helps to understand the prevalence of advertising on social networks and provides insight into user behavior and interaction with ads in this context.

Figure 1 represents the distribution of the number of respondents for each participant category. In the survey of 60 participants, a majority of 50 individuals, representing 83.3% of the total sample, reported being exposed to AI-driven advertisements more than 6 times. Furthermore, among these 50 individuals, only 21 stated that they had clicked on such advertisements, which accounts for 42%. Among these 21 individuals, 16 reported finding the AI-driven advertisements relevant, representing 76.2% of this subgroup.

Thus, this study focus primarily shows that content generated by AI, as a result, is anticipated to be more captivating and tailored to audiences. The data reveal that the improved *fine-tuning abilities*[2] of AI help digital marketers customize content and communication for each individual, ultimately cultivating a more personalized customer journey.

2. Study Focus 2: Consumer Community Engagement and Interaction

Public relations scholars emphasize the significance of engagement as a pivotal factor in fostering and reinforcing relationships [20].

In this vein, this section aims to fathom the levels of activity and participation of individuals within online communities on social networks. By exploring how active users are in these communities, the goal is to gain insights into the dynamics of online interactions, the extent of community engagement, and the factors influencing user participation.

Respondent 17:
"Yes, I do. Relevant ads on social media play a vital role in reinforcing our sense of belonging to an online community. By showcasing products and events that resonate with our shared interests, these ads help foster deeper connections among community members. They contribute to creating a more inclusive and engaging environment reflective of our collective values."

Respondent 42:
"Definitely! When social media ads match our interests, they make us feel more connected to our community. It's like seeing a reflection of what matters to us online. These ads bring us together and make our community stronger."

These responses highlight the positive impact of relevant ads on social media in enhancing the sense of belonging within online communities. By aligning with shared interests and values, these ads not only provide valuable information but also contribute to strengthening connections among community members. The emphasis on inclusivity and engagement underscores the importance of targeted advertising in creating a supportive and cohesive online environment. Overall, the comment effectively communicates the significance of tailored ads in fostering a sense of community on social media platforms.

Fig. 2 : Community Engagement Statistics
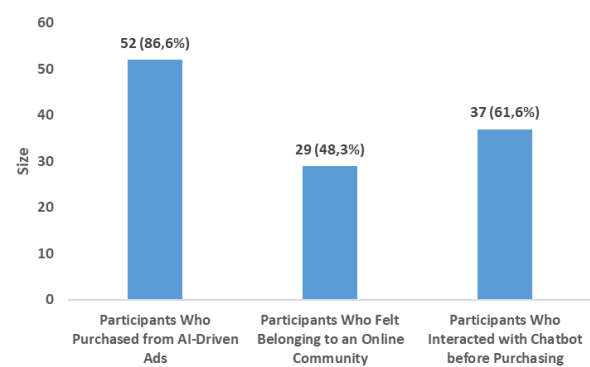
As depicted in Figure 2, among the 60 survey participants, a significant majority of 52 individuals, equivalent to 86.6%, reported having purchased AI-driven advertisements. Furthermore, nearly half, 29 individuals (48.3%), felt a sense of belonging to an online community. Additionally, a notable proportion of 37 individuals (61.6%) stated that they had interacted with a chatbot before making a purchase.

3. Study Focus 3: Future considerations and recommendations

This section is designed to recognize how individuals perceive and engage with feedback mechanisms and recommendations from a consumer's perception. Therefore, the goal is to inform the development of more effective feedback systems and encourage meaningful engagement among individuals and organizations.

The responses gathered provide numerous interesting recommendations for improving the efficacy of social media advertising which can be summarized as such:

	Recommendations for improving the efficacy of SM Advertising
1.	*The significance of accurately identifying the target audience to achieve more clear-cut ad targeting.*
2.	*Employing visually attractive graphics or videos to efficiently catch viewers' attention and opt for simple and terse wording*

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[2] AI pertains to systems capable of exhibiting intelligent behavior through analysis of their surroundings and executing actions to accomplish specific objectives. These systems can learn from experience, adapt to novel inputs, and perform tasks typically associated with human intelligence [19].

	for guaranteed comprehension, which are easily offered by generative AI.
3.	*Testing and improving adverts using Split Testing to identify the most effective techniques.*
4.	*Using retargeting advertising to engage people who have already interacted with the business, which increases the probability of conversion.*
5.	*Emphasize the significance of monitoring ad performance using social media analytics tools and making the required modifications.*

DISCUSSION

The results of the analysis of the feedback reveal several key themes that significantly influence individuals' perceptions of advertising effectiveness and engagement on SNS. Hence, many significant criteria that influence their perception of relevant and engaging marketing on SNS were identified. The results showed that respondents exhibit a preference for ads that correspond to their interests and needs, underlining the importance of relevance in advertising content.

Study focus 1 helps to understand the prevalence of advertising on social networks and provides insight into user behavior and interaction with ads in this context. The data gathered *(Fig.1)* indicates that a large majority 83,3% encounter social media ads more than six times. This underscores the widespread exposure to ads on these platforms and highlights the potential for AI-powered targeting to improve ad relevance and effectiveness.

Among the subset of respondents who clicked on AI-driven advertisements, a notable proportion found them relevant to their interests. Specifically, 76.2% of individuals who clicked on these ads reported finding them relevant. This finding highlights the critical role of relevance in driving engagement with AI-driven ads. It suggests that targeted advertising strategies that align with consumers' interests and preferences are more likely to elicit positive responses and interactions. As such, advertisers may benefit from investing in AI technologies that enable precise targeting and personalized content delivery to enhance the relevance and effectiveness of their advertising campaigns.

Hence, based on the figures provided, it is evident that a significant portion of participants engaged with AI-driven ads felt a sense of belonging to online communities, and interacted with chatbots before making purchases. This indicates a high level of activity and engagement on social media platforms. Furthermore, Shandana Zafar's research supports this evidence by highlighting the effectiveness of social media in targeting younger consumers. The data suggests that younger demographics are actively involved in activities such as purchasing from AI-driven ads and interacting with chatbots, further emphasizing the relevance and influence of social media on this demographic.

The data reveals strong engagement with AI-driven ads, a sense of belonging in online communities as shown in *Fig.2, and* significant interaction with chatbots before purchasing. These findings support the research objective of assessing AI-Social Fusion's impact on consumer behavior and advertising effectiveness within digital communities.

Furthermore, the respondents value original and interactive forms that draw their attention, demonstrating a desire for engaging and visually appealing advertising experiences. Furthermore, they find commercials including specials or exclusive deals to be highly appealing, implying that incentives and discounts play an important role in catching their attention.

Likewise, the responders appreciate tailored advertising based on individual interests, acknowledging the significance of personalized content in improving the overall user experience. What is unexpected is the importance of supporting local cooperatives, small enterprises, and artists in Morocco is quite recurring in the respondents' feedback, a factor that pushed the SNS users to interact with the content they are exposed to.

On the other hand, some of the respondents find social media advertisements intrusive, repetitive, and often irrelevant.

Respondent 9:
"In general, I find social media ads intrusive, repetitive, or irrelevant to me. I can feel that these ads lack transparency in terms of data collection or targeting. I also find them annoying when they interrupt my browsing experience."
Respondent 31:
"In general, social media ads often feel intrusive, repetitive, and irrelevant to me. I'm concerned about their lack of transparency in data collection and targeting. Plus, they disrupt my browsing experience. Shorter ads would be a welcome change."

The respondents express concerns about transparency in data collection and targeting practices, and irritation when ads disrupt their browsing experience. This feedback stresses the need for improvements in ad relevance, transparency, and user experience on SNS. Other respondents bring up the issue of unnecessarily lengthy adverts. They express dissatisfaction with long advertisements, implying that they may be unproductive or unappealing to viewers. This response indicates a preference for shorter, more succinct commercials that grab attention without being too obtrusive or time-consuming.

The results also suggest facilitating the growth of specialized communication agencies through youth training programs to meet communication standards. This would ensure that the level of expertise in communication meets our high expectations. Likewise, another element that should be highlighted is avoiding deceptive advertising, for trust is a key element in enhancing the user-consumer experience. Finally, tailoring content to specific age and demographic segments for more effective campaigns and limiting ad duration, and frequency to avoid consumers' reluctance will have advantageous outcomes on both the advertiser's and consumers' ends.

Another suggestion proposes the implementation of a tool to align advertising with users' interests, aiming to enhance the relevance and effectiveness of ads. While offering potential benefits such as improved targeting and user satisfaction, it also raises considerations regarding user privacy, technical feasibility, and the need to strike a balance between personalization and privacy. These suggestions aim to enhance transparency, relevance, and consumer trust in advertising practices.

CONCLUSION

This article examines the impact of the collaborative integration of AI and social networking sites (SNS) on advertising effectiveness and consumer community engagement within the Moroccan context.

Through participant feedback analysis, key themes influencing perceptions of advertising effectiveness and engagement on SNS were identified. Notably, relevance emerged as a significant criterion influencing individuals' perceptions of engaging marketing content on SNS. Businesses are increasingly integrating social media into their marketing strategies to foster lasting connections with customers [21]. While three-quarters of respondents reported widespread exposure to ads on these platforms, only about one-quarter frequently clicked on algorithm-powered ads, suggesting room for improvement in ad effectiveness. Consumers prefer original, interactive content that captures attention, with incentives and personalized advertising based on individual interests being appreciated, rather than the classic approaches of advertising adopted by traditional media. However, some users find social media ads intrusive and repetitive, expressing concerns about data collection and targeting transparency. Valuable recommendations for enhancing social media advertising effectiveness include accurately identifying the target audience, utilizing visually appealing content, and monitoring ad performance for optimization.

REFERENCES

[1] A. S. a. U. Khanna, "Advertising on Social Network Sites: A Structural equation modelling approach," *Vision,* vol. 17, p. 17–25, 2013.

[2] S. a. L. C. Chen, ""Understanding the effect of social media marketing activities: The mediation of social identification, perceived value, and satisfaction," *Technological Forecasting and Social Change,* vol. 140, p. 22–32, 2019.

[3] A. A. S. a. A. M. M. Sohaib, "Role of social media marketing activities in China's e-commerce industry: A stimulus organism response theory context," *Frontiers in Psychology,* vol. 13, p. 2022.

[4] Y. Qian, "Comparative study of advertising characteristics and market influence in Old and New Media," *Lecture Notes in Education Psychology and Public Media,,* vol. 4, no. 1, 2023.

[5] O. O. a. A. U. Utulu, "Is the New Media Superior to the Traditional Media for Advertising," *Asian Journal of Economic Modelling,* vol. 4, no. 1, p. 57–69, 2016.

[6] V. M. W. a. H. a. M. Voorveld, "Creative vs. Traditional Media Choice: Effects on Word-of-Mouth and Purchase Intention,," in *Springer eBooks,* 2015, p. 325–335.

[7] I. o. S. M. A. a. U. Students, "Impact of social media advertisements on university students," *Arts and Social Sciences Journal,* vol. 8, no. 4, 2017.

[8] N. P. W. L. C. a. A. M. Y. K. Dwivedi, "Leveraging ChatGPT and other generative artificial intelligence (AI)-based applications in the hospitality and tourism industry: practices, challenges and research agenda," *International Journal of Contemporary Hospitality Management,* vol. 36, p. 1–12, 2023.

[9] Y. K. D. T. H. D. a. N. P. N. Kshetri, "Generative artificial intelligence in marketing: Applications, opportunities, challenges, and research agenda," *International Journal of Information Management,* p. 102716, 2023.

[10] M. R. N. a. C. A. R. J. Huh, "ChatGPT, AI Advertising, and Advertising Research and Education," *Journal of Advertising,* vol. 52, no. 4, p. 477–482, 2023.

[11] W. H. Kunz and J. Wirtz, "Corporate digital responsibility (CDR) in the age of AI: implications for interactive marketing," *Journal of Research in Interactive Marketing,* 2023.

[12] A. U. a. C. D. J. Paul, "ChatGPT and consumers: Benefits, Pitfalls and Future Research Agenda," *International Journal of Consumer Studies (Print),* vol. 47, no. 4, pp. 1213-1225, 2023.

[13] M. S. D. A. S. a. A. S. R. Peres, "On ChatGPT and beyond: How generative artificial intelligence may affect research, teaching, and practice," *International Journal of Research in Marketing,* vol. 40, no. 2, p. 269–275, 2023.

[14] M. J. P. a. J. Rotman, "Should Artificial Intelligent Agents be Your Co-author? Arguments in Favour, Informed by ChatGPT," *Australasian Marketing Journal,,* vol. 31, no. 2, p. 91–96, 2023.

[15] Y. K. Dwivedi and a. et , "So what if ChatGPT wrote it?' Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy,," *International Journal of Information Management,* vol. 71, p. 102642, 2023.

[16] A. K. a. M. Haenlein, "Social media: back to the roots and back to the future," *Journal of Systems and Information Technology,* vol. 14, no. 2, p. 101–104, April 2012.

[17] T. H. e. al., "The impact of new media on customer relationships," *Journal of Service Research,* vol. 13, no. 33, p. 311–330, 2010.

[18] R. Ezzat, "History and Development of Advertising through Media Technology," *Journal of Art Design and Music,* vol. 2, no. 1, January 2023.

[19] J. Heaton, "Ian Goodfellow, Yoshua Bengio, and Aaron Courville: Deep learning," *Genetic Programming and Evolvable Machines,* vol. 19, no. 1–2, p. 305–307, October 2017.

[20] B. G. S. a. T. D. Gallicano, "Terms of engagement: Analyzing public engagement with organizations through social media," *Computers in Human Behavior,* vol. 53, p. 82–90, 2015.

[21] N. P. R. Y. K. D. a. R. A. A. A. Alalwan, "Social media in marketing: A review and analysis of the existing literature," *Telematics and Informatics,* vol. 34, no. 7, p. 1177–1190, 2017.

[22] T. A. Shimp, Advertising, promotion, and other aspects of integrated marketing communications, 2009.