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# AI In the Creation of Marketing Communication Content

**Michal Kubovics**[1]

[1] *Faculty of Mass Media Communication, University of Ss. Cyril and Methodius in Trnava*

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**Abstract -** Artificial intelligence (AI) is fundamentally transforming marketing communications, enabling content personalization and increasing campaign effectiveness. This article analyzes the evolution of research topics in AI-driven content creation in marketing communications through a bibliometric analysis of data from the Web of Science Scientometric Database. The results reveal a significant increase in publications on this topic from 2022 onwards, with "artificial intelligence", "generative AI" and "ChatGPT" being the dominant key terms. The research also identified five main topic categories, with the most prominent being the area of General AI in Marketing Communication. A chi-square test of independence confirmed statistically significant differences in the prevalence rates of the research categories over the years, suggesting a dynamic evolution of the topic. In contrast, the hypothesis of cyclical research trends was not supported. The results highlight the growing academic interest in the use of AI in marketing communications and highlight the need for further research into its practical applications, ethical considerations and impact on consumer behaviour.

***Key Words*:** artificial intelligence, generative AI, marketing communications, ChatGPT, personalized content, bibliometric analysis.

## 1.INTRODUCTION

Artificial Intelligence (AI) has revolutionized the marketing communications landscape and offers unprecedented innovation opportunities in various segments of marketing communications with a focus on personalization and, most importantly, efficiency. By leveraging AI technology, marketing executives can create engaging content that speaks to their target audiences. The present paper explores the transformative impact of AI on content creation in marketing communications with a focus on future trends and especially challenges in the aforementioned field. Currently, we can say that AI has significantly changed the process of content creation in marketing communications (Kubovics, 2024). Generative AI text models, such as OpenAI ChatGPT, Google Gemini, allow marketers to generate visual and textual content with minimal human intervention (Patil, 2025) (Smith & Hutson, 2024). As defined by Raut et al. (2024) the above tools are particularly useful in creating personalised, scalable and dynamic content that has the potential to influence the target audience. Likewise, confirming the potentiality of AI tools Babadoğan (2024), AI such as natural language processing (NLP) and machine learning algorithms, additionally, enables marketing managers to generate content, analyze audience preferences, and deliver personalized messages with unprecedented efficiency. For example, AI can be used to create personalized product recommendations, automated blog posts, and social media updates that are optimized for the most effective interaction with the target audience (Balamurugan, 2024). The integration of AI into content creation is also extending to content consumption trends such as augmented reality (AR) and virtual reality (VR). AR tools driven through AI can create virtual experiences for e.g. fashion products, allowing consumers to imagine how products would look on them without physically trying them on (Islam et al., 2024). AI is also currently being used to analyse big data on user behaviour and their accompanying including browsing patterns, purchase history and social media activity to create personalised marketing strategies (Patil, 2025) (Islam et al., 2024). Pasupuleti (2024) and Raut (2024) add that by leveraging machine learning algorithms, AI can additionally predict the behaviour and preferences of the target audience, allowing entities to deliver personalised content that fosters emotional connections and brand loyalty. According to Patil (2025), generative AI models can create personalized email marketing campaigns and advertising content campaign ideas that are tailored to users' individual interests. The aforementioned AI-based tools also allow entities to predict optimal times to communicate with users, ensuring that campaigns have better effectiveness. Likewise, Patil (2025) confirms AI systems can potentially automate A/B testing, copywriting, and target audience segmentation, allowing for more creative and strategic output to be defined with the help of marketing managers. On the other hand, it is very important to pay attention to topics such as data privacy, algorithmic bias, and transparency in AI-based decision making are critical issues that marketers must

address to maintain consumer trust (Patil, 2025) (Islam et al., 2024). AI systems and their predisposition in functionality in the form of dataset rely on the collectivization and storage of big data to create personalized content and targeted advertising. However, the collection and use of data for various purposes raises privacy and data security concerns (Islam et al., 2024) (Gungunawat et al., 2024). According to Islam et al. entities that work with said data should ensure secure handling of data and definitely comply with data protection regulations such as adherence to the General Data Protection Regulation (GDPR) to protect user information in particular (Islam et al., 2024). In the same way, it is important to be mindful of AI algorithmic bias, which is another ethical challenge in marketing communications. According to Gungunawat et al. (2024), AI algorithms may maintain biases based on the facts present in the data they are trained on, which can lead to poor or discriminatory marketing outputs (Islam et al., 2024). AI systems can target specific demographic groups with specific types of content through a predetermined dataset, thereby reinforcing stereotypes or biases (Jha et al., 2024). To mitigate these risks, entities must ensure that AI algorithms are fair, transparent, and free of bias (Rao et al., 2025). Transparency in AI-based decision making is also essential to maintain user trust. According to Muvvo (2025), entities should be transparent about how AI is used in content creation and targeting so that users are aware of how their data is being used. By promoting transparency and accountability, entities can build trust with their audiences and ensure ethical use of AI in marketing communications (Iyer et al., 2025). The future of AI in marketing communications is poised for significant growth and innovation. As AI technologies continue to evolve, entities can expect even greater personalization, efficiency, and creativity in content creation and delivery (Smith & Hutson, 2024) (Bobro et al., 2024). Research suggests that the age structure of the audience may play a significant role when encountering the concept of AI (Moravec et al., 2024). In general, Cai (2024) states that older generations exhibit lower levels of familiarity and confidence with new technologies compared to younger users, who are generally more digitally savvy and more natural in adopting innovative solutions. Based on a study by Cai (2024), a question arises regarding generational variability, which potentially may also be related to access to information, where it is younger individuals who are more likely to consume content from online media and social networks, thus encountering the possibilities of AI tools more quickly. Similarly, Armutat et al. (2024) highlight the different relationship between men and women towards AI, with some observations suggesting that men reach for AI technologies more frequently in certain contexts. According to that study, the difference can be attributed to both differences in interests and different patterns of technological socialization. Nevertheless, it cannot be generalized that this is a universally valid phenomenon, as studies (Malik, 2024; Kang, 2024; Arısoy Gedik & Ceyhan, 2024) also point to a narrowing of the gender gap in the technological field, with the increasing availability and ease of digital solutions. As the frequency of use of AI tools increases, some users' positive perceptions of the functionality and overall quality of these systems also increase. Regular experiences with AI technologies lead to greater confidence, more effective interaction, and a deeper understanding of potential benefits and limitations (Isaksen et al., 2025). However, understanding may not be uniform across different target groups, as some may approach algorithmic solutions with a higher degree of skepticism (Levantis & Sgora, 2024), especially when it comes to the education sphere (Ghani et al, 2023). There are views that a large number of people are concerned about the potential consequences of the overuse of AI in education, not only in terms of ethical considerations, but also in terms of the quality of teaching or over-automation of assessment (Bulut & Beiting-Parrish, 2024) (Mishara, 2024). In this context, it is also interesting to see to what extent the target group is willing to accept the collection of personal data for the purpose of education or tailoring marketing communications (Kozyreva et al., 2021). It is hypothesized that users who have a richer knowledge of more types of AI tools show a higher tolerance for data analytics and content personalization (Marquis et al., 2024). Consequently, it is important to focus on the perceived quality of the AI-generated content itself (Tian et al., 2024). If it is perceived as reliable and relevant, some users are willing to accept it without further human control (Henestrosa & Kimmerle, 2025). These individuals may even actively seek out virtual assistants, chatbots or other forms of automated communication if they have already encountered them and find them beneficial (Ghildyal et al., 2024). Social media and marketing campaigns remain important areas for the application of AI, where generated content can reach target audiences quickly and at scale (Bhattacharya, 2025). The rise of personalized campaigns and automation of text creation signals that AI is becoming a significant factor for the future development of the media and marketing market (Rahbar, 2024). Authors Ji et al. (2024) and Singh et al. (2024) suggest that it is thorough segmentation and the ability to leverage machine learning

in targeted communications that will lead to an even more significant transformation. Meanwhile, people who can recognize and embrace new trends in AI tend to be more open to incorporating these tools into media-marketing strategies Millagala, (2023); Dharani et al. (2023). The level of education also plays a not insignificant dimension in all the above aspects. Higher educated individuals are more likely to possess better digital skills, be more flexible in adopting new technologies and demonstrate higher levels of AI acceptance (Biswas & Murray, 2024). Thus, in the context of marketing communications, there is a greater understanding of the potential benefits of machine learning, computer vision, or natural language processing (Bormane & Blaus, 2024). The regular use of these tools leads to an increasing awareness of the possibilities and limitations, which translates into a perception of their impact on one's own customer experience or business processes (Marcon et al., 2025). Respondents who had longer experience with chatbots and virtual assistants had more confidence in their capabilities and thus supported a stronger integration of AI into marketing communication strategies (Senyapar, 2024). The above theoretical background suggests that the process of AI perception in marketing depends on a combination of demographic and behavioural factors, the range of information available, as well as specific experiences with AI solutions. Confirming this, (Qadri et al., 2025) additionally adds that knowledge of these mechanisms can offer brands, agencies and other stakeholders in marketing communications important cues on how to approach the creation and implementation of innovative campaigns, optimize personalized content, and build trust for AI tools across diverse target segments. Based on the theoretical background, the research question and hypotheses were established.

Research question:
VO: How have the main research topics in the Web of Science database evolved based on the keyword content production in marketing communications?

Hypothesis:
H1: There are statistically significant differences between research categories in their prevalence rates over the years.
H2: The occurrence of some research topics is concentrated in certain periods, indicating cyclical patterns or trends in scientific research.

## 2. METHODS

The study uses bibliometric analysis to examine research trends in the use of artificial intelligence (AI) to create marketing communication content. The dataset was obtained from the Web of Science database, which provides records of academic publications. The records that were collected contained basic bibliometric sections such as title, authors, keywords, year of publication, abstract, and source of publication such as journal or conference proceedings. The above dataset formed the basis of the analysis and allowed for a comprehensive examination of research trends, authors' contributions, and thematic developments over time. Once the data set was obtained, the dataset went through a data preprocessing phase to ensure accuracy and consistency. Extraction and structuring of key metadata fields, standardization of keyword formatting by converting all text to lowercase, removal of redundant spaces, and tokenization of multi-word terms for further analysis took place. Subsequently, duplicate or missing values were identified to maintain the purity of the dataset. Publication years were converted to numeric format to facilitate time-series trend analysis. Descriptive bibliometric analysis was performed to generate statistical interpretations. The analysis was conducted including annual publication trends to assess the growth of interest in the topic over time, as well as to identify the most frequent authors publishing in the field. Further analysis was conducted on keyword frequency to highlight the dominant themes and terms used in papers focused on content production in AI-driven marketing communications. A word cloud was created to visualize the keywords, supplemented by a table of sorted categories of the most frequently occurring terms. To assess whether the research topics evolved significantly over time, a Chi-squared test of independence was applied to the contingency table of keywords with years.

$$\chi^2 = \Sigma [(O - E)^2 / E] \quad (1)$$

$\chi^2$ = chi-squared value,
$\Sigma$ = sum for all categories,
O = observed frequency,
E = expected frequency.

The above statistical test assessed whether certain keywords were disproportionately associated with specific years, indicating thematic shifts in the research area. In addition, a standardized residual analysis was used to identify keywords that showed unexpected increases or decreases across years. This helped to identify both emerging and declining research trends in AI and marketing communications. Further, statistical validation in the form of Tukey's HSD test was used to compare the significance of differences between research categories.

$$HSD = q \times sqrt(MSwithin / n \quad (2)$$

HSD= minimal significant difference between groups,
q - critical value of the Studentized range,
MSwithin= the mean squared within-group deviation from the ANOVA analysis,
n - number of observations in each group.

The above test helped to determine whether the topic areas showed significantly significantly higher or lower levels compared to the next area. By utilizing both quantitative and qualitative findings, the methodological design provides a comprehensive examination of the themes of how artificial intelligence has shaped and continues to influence content creation in marketing communications. MS Excel and IBM SPSS 30 were used to process the results.

## 3. RESULTS

The result for the research question worded as how the main research themes in the Web of Science database evolved based on the keyword content production in marketing communications is as follows. The bibliometric analysis provided the result about the evolution of the topic content production in marketing communication through AI. The number of publications has increased significantly in recent years, with a significant increase in research production since 2022 (Fig. 1). Between 2018 and 2024, the number of publications increased from a few studies per year to several dozen per year, indicating a rapid increase in interest in this area.

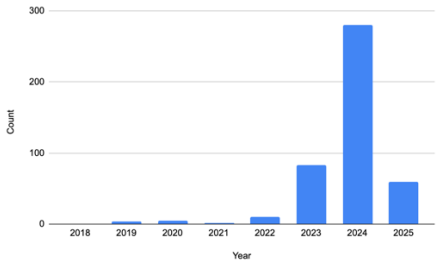


**Fig -1**: Number of themes per

Keyword frequency analysis (Table 1) showed that the most dominant terms include "artificial intelligence" (92 mentions), "ChatGPT" (54 mentions), "generative AI" (53 mentions), "AI-generated content" (29 mentions), and AI (21 mentions).

**Table -1:** Frequency of individual keywords

| Keyword | Count |
|---|---|
| **artificial intelligence** | 92 |
| **ChatGPT** | 54 |
| **generative AI** | 53 |
| **AI-generated content** | 29 |
| **AI** | 21 |

The word cloud visualization (Fig. 2) highlights recurring themes, suggesting that AI in content creation within marketing communications focuses primarily on AI, generative AI, and ChatGPT, but also AIGC, ethical underpinnings, LLM, and ML.

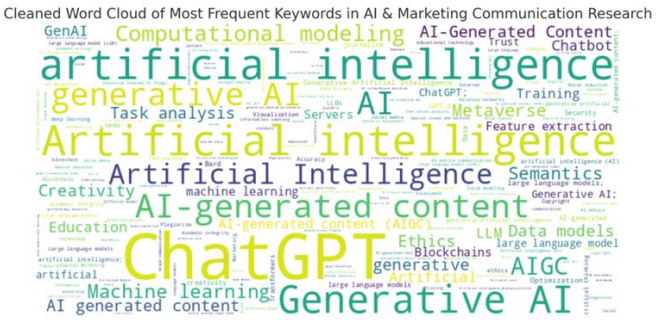


**Fig -2**: Word cloud of frequency of each keyword

The identification of the main themes (Table 2) led to the definition of five main categories. Specifically, these categories are General AI in Marketing Communication (327), Personalization & Targeting (63), AI-Driven Content Creation (44), Ethical & Regulatory Concerns (5), AI in Specific Sectors (3), Marketing Strategy & Optimization (2).

**Table -2:** Distribution of contribution categories and percentages

| ***Category*** | ***Count*** | ***Percentage (%)*** |
|---|---|---|
| *General AI in Marketing Communication* | 327 | 73.65 |
| *Personalisation & Targeting* | 63 | 14.19 |
| *AI-Driven Content Creation* | 44 | 9.90 |
| *Ethical & Regulatory Concerns* | 5 | 1.13 |
| *AI in Specific Sectors* | 3 | 0.68 |
| *Marketing Strategy & Optimization* | 2 | 0.45 |

| | | |
|---|---|---|
| *SUM* | 444 | 100 |

The prevalence of categories suggests that while automation remains a major research focus, researchers are paying increasing attention to the ethical implications and applications of AI in specific industries. To evaluate whether certain research topics have evolved over time, a chi-square test of independence was conducted on a contingency table of keywords and years. The results showed a highly significant relationship ($\chi^2 = 7612.79$, $p < 0.000$, $df = 7119$), confirming that research topics related to content creation through artificial intelligence within marketing communications change significantly across years. Hypothesis H1 is confirmed and holds that there are statistically significant differences in the rate of occurrence between research categories across years. Analysis of each theme identified specific terms that have either increased or decreased sharply in importance. 'ChatGPT' and 'Generative AI' showed a significant increase in recent years, meaning that they appeared much more frequently than expected based on previous trends. Conversely, keywords such as 'Machine Learning' and 'Big Data' showed negative trends, indicating a decline in the topic towards broader AI concepts in favour of more specialised topics. Further statistical validation of using Tukey's HSD test assessed the differences between the research categories. The results of Tukey's HSD test determine that a statistically significant difference occurs between the categories of General AI in Marketing Communication (327) and AI in Specific Sectors (3), with the former category having a significantly higher frequency (mean difference -277.0; $p = 0.0000$). This difference suggests that research on AI in marketing communication has largely focused on general aspects of AI, while specific sectors have been less researched. Other categories, such as AI-Driven Content Creation (44), Ethical & Regulatory Concerns (5), Marketing Strategy & Optimization (2), and Personalization & Targeting (63), did not show statistically significant differences in their peer comparisons. The difference between AI-Driven Content Creation (44) and AI in Specific Sectors (3) was -28.5 ($p = 0.9921$), between Ethical & Regulatory Concerns (5) and AI in Specific Sectors (3) was -4.0 ($p = 1.0000$), and between Marketing Strategy & Optimization (2) and AI in Specific Sectors (3) was 2.5 ($p = 1.0000$), with none of these differences being statistically significant. Despite some categories having noticeably higher frequencies than others, the differences between them were not large enough to be statistically significant. Hypothesis H2 was not supported by the occurrence of some research topics not being concentrated in certain periods, which does not suggest cyclicality or trends in scientific research. The results suggest that while the broadly defined area of artificial intelligence in marketing communications dominates academic discussions, the other categories maintain a relatively similar level of interest, with none of them significantly different from the others. The results of the bibliometric analysis illustrate the dynamic development of research on artificial intelligence in marketing communication. The high increase in publications over the last five years points to an increasing academic interest in the field. Keyword analysis showed that artificial intelligence, ChatGPT and generative AI have become dominant topics. It was confirmed that research topics have shifted significantly over time. The findings suggest that the role of AI in content marketing communications production is evolving rapidly, with increasing attention being paid to its practical applications in particular.

## 4. DISCUSSION AND CONCLUSION

It is evident from the outcomes reviewed to date that analysis of demographic factors such as age and gender can contribute significantly to understanding how these variables affect AI familiarity and frequency of AI practice (Cai, 2024; Moravec et al., 2024; Armutat et al., 2024). For example, several studies suggest that older populations are less exposed to AI technologies and are often more wary of them, while younger audiences incorporate AI into their routine activities at a significantly faster rate (Kang, 2024). At the same time, it is highlighted that although gender is still a subject of investigation in the use of AI, the differences between men and women are gradually narrowing and individual interests or technological skills are more likely to come to the fore (Arısoy Gedik & Ceyhan, 2024). The question of the frequency and manner of the real use of AI can be raised not only in the marketing sphere, but also in education. In this field, automated assessment and performance analysis tools raise a number of ethical and practical questions (Bulut & Beiting-Parrish, 2024; Ghani et al., 2023). In particular, debates concern the accuracy of the systems and the privacy of the data used to personalize learning or marketing content (Mishara, 2024; Kozyreva et al., 2021). In addition, several authors point out that it is essential that this data is processed transparently, which strengthens user trust (Islam et al., 2024; Gungunawat et al., 2024). For marketing itself, it is important to further understand what the quality of AI-

generated content is and to what extent consumers trust it. Available research shows that regular interaction with chat models or virtual assistants leads to perceptions of outputs as credible (Isaksen et al., 2025; Ghildyal et al., 2024). On the other hand, if users do not yet have a clear idea of what AI can do, they may approach its results with more skepticism (Levantis & Sgora, 2024). It is repeated experiences with AI systems that can increase many people's confidence in their ability to generate coherent and relevant content (Henestrosa & Kimmerle, 2025; Marquis et al., 2024). An equally interesting direction is to track where and in what form people commonly encounter AI (Balamurugan, 2024; Babadoğan, 2024). This may include generative text technologies, image processing algorithms, or augmented reality applications (Islam et al., 2024). Publications by Smith and Hutson (2024) and Patil (2025) suggest that content automation, for example in the creation of marketing campaigns, will continue to grow, while also highlighting the importance of exploring end-users' expectations: are they prepared to accept content without human correction or will they require a degree of control? The strategic implications that AI can have on the media and marketing sector are also relevant in the longer term. Several authors argue that AI technologies are streamlining the tailoring of content to different target audiences and changing traditional marketing strategies (Kubovics, 2024; Bobro et al., 2024; Raut et al., 2024). However, it remains open whether customers will fully accept automated solutions and to what extent they expect human supervision, especially in cases where more sensitive interactions are involved (Rao et al., 2025; Muvva, 2025). The aforementioned themes would be particularly useful to explore in terms of the impact of demographics on AI use, detailing the manner and frequency of interaction with AI tools, through to the longer-term impacts on marketing communications, thus capturing a more complete picture of how AI is reshaping the media and communications landscape. At the same time, these insights could fundamentally guide the further development of marketing practices, reflecting the need for transparency, ethical accountability and consideration of audience diversity.

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## REFERENCES

1. Arısoy Gedik, C., & Ceyhan, A. İ. (2024). The gender gap in the digital era: Reaching algorithmic fairness and technological inclusivity in network society. Communication Papers, 13(26), 64-75. https://doi.org/10.33115/udg_bib/cp.v13i26.23038

Armutat, S., Wattenberg, M., & Mauritz, N. (2024). Artificial intelligence - gender-specific differences in perception, understanding, and training interest. International Conference on Gender Research, 7(1), 36-43. https://doi.org/10.34190/icgr.7.1.2163

Babadoğan, B. (2024). Exploring the Role of AI in Automating Content Marketing: Unlocking Opportunities and Navigating Challenges. https://doi.org/10.62802/gkj6f352

Balamurugan, M. (2024). Automating Strategy Adjustments for Enhanced Consumer Engagement. International Journal For Multidisciplinary Research. https://doi.org/10.36948/ijfmr.2024.v06i05.27940

Bhattacharya, C. (2025). Ai-powered predictive models transforming the future of digital marketing and customer engagement. Journal of Informatics Education and Research, 5(1). https://doi.org/10.52783/jier.v5i1.2015

Biswas, M., & Murray, J. (2024). The impact of education level on ai reliance, habit formation, and usage. 2024 29th International Conference on Automation and Computing (ICAC), 1-6. https://doi.org/10.1109/ICAC61394.2024.10718860

Bobro, N., Hyshchuk, R., Strungar, A., Bukovskyi, O., & Alekseiko, V. (2024). Exploring the role of AI in shaping future marketing strategies: evaluations and outlooks. Revista Amazonía Investiga. https://doi.org/10.34069/ai/2024.80.08.4

Bormane, S., & Blaus, E. (2024). Artificial intelligence in the context of digital marketing communication. Frontiers in Communication, 9, 1411226. https://doi.org/10.3389/fcomm.2024.1411226

Bulut, O., & Beiting-Parrish, M. (2024). The rise of artificial intelligence in educational measurement: Opportunities and ethical challenges. Chinese/English Journal of Educational Measurement and Evaluation, 5(3). https://doi.org/10.59863/MIQL7785.

Cai, Y. (2024). Analyzing behavioral changes in the elderly under the influence of social media through the lens of the technology acceptance model. Advances in Economics, Management and Political Sciences, 134(1), 58-67. https://doi.org/10.54254/2754-1169/2024.18685

Dharani, D. L., Vij, R., Ansari, M. S. A., & Srinivas, A. (2023). Social media marketing using the aiml algorithm. 2023 International Conference on New Frontiers in Communication, Automation, Management and Security (ICCAMS), 1-5. https://doi.org/10.1109/ICCAMS60113.2023.10525792.

Ghani, M. M., Mustafa, W. A., Hashim, M. E. A. B., Hanafi, H. F., & Alabdeli, H. (2023). Whisper of understanding: Age differences in algorithmic literacy across generations. 2023 International Conference for Technological Engineering and its Applications in Sustainable Development (ICTEASD), 415-420. https://doi.org/10.1109/ICTEASD57136.2023.10584953

Ghildyal, A., Chen, Y., Zadtootaghaj, S., Barman, N., & Bovik, A. C. (2024). Quality prediction of ai generated images and videos: Emerging trends and opportunities. arXiv. https://doi.org/10.48550/ARXIV.2410.08534

Gungunawat, A., Khandelwal, N., & Gupta, N. (2024). AI-Powered Personalization in Digital Marketing: Transforming Consumer Engagement and Strategy. Research Review International Journal of Multidisciplinary. https://doi.org/10.31305/rrijm.2024.v09.n11.026

Henestrosa, A. L., & Kimmerle, J. (2025). "Always check important information! "-The role of disclaimers in the perception of ai-generated content. https://doi.org/10.31234/osf.io/sbqjk

Isaksen, A. A., Schaarup, J. R., Bjerg, L., & Hulman, A. (2025). Changes in public perception of AI in healthcare after exposure to ChatGPT. https://doi.org/10.1101/2025.01.23.25321048

Islam, M. A., Fakir, S. I., Masud, S. B., Hossen, Md. D., Islam, M., & Siddiky, M. R. (2024). Artificial intelligence in digital marketing automation: Enhancing personalization, predictive analytics, and ethical integration. Edelweiss Applied Science and Technology. https://doi.org/10.55214/25768484.v8i6.3404

Islam, T., Miron, A., Nandy, M., Choudrie, J., AUTHOR_ID, N., & AUTHOR_ID, N. (2024). Transforming Digital Marketing with Generative AI. Computers. https://doi.org/10.3390/computers13070168

Iyer, V., Manshad, M., & Brannon, D. (2025). A value-based approach to ai ethics: Accountability, transparency, explainability, and usability. Mercados y Negocios, 26(54), 3-12. https://doi.org/10.32870/myn.vi54.7815

Jha, A., Kabra, S., & Reddy, C. K. (2024). Biased or flawed? Mitigating stereotypes in generative language models by addressing task-specific flaws. arXiv. https://doi.org/10.48550/ARXIV.2412.11414

Ji, H., Xu, X., Su, G., Wang, J., & Wang, Y. (2024). Utilizing machine learning for precise audience targeting in data science and targeted advertising. Academic Journal of Science and Technology, 9(2), 215-220. https://doi.org/10.54097/r7gek671

Kang, J. (2024). The impact of technological progress on the gender wage gap. Highlights in Business, Economics and Management, 43, 594-605. https://doi.org/10.54097/drbbgs49

Kozyreva, A., Lorenz-Spreen, P., Hertwig, R., Lewandowsky, S., & Herzog, S. M. (2021). Public attitudes towards algorithmic personalization and use of personal data online: Evidence from Germany, Great Britain, and the United States. Humanities and Social Sciences Communications, 8(1), 117. https://doi.org/10.1057/s41599-021-00787-w

Kubovics, M. (2024). Innovative content production in marketing communication through ai. European Conference on Innovation and Entrepreneurship, 19(1), 377-383. https://doi.org/10.34190/ecie.19.1.2877

Levantis, N., & Sgora, A. (2024). Algorithmic decision making in education: Challenges and opportunities. 2024 IEEE Global Engineering Education Conference (EDUCON), 1-7. https://doi.org/10.1109/EDUCON60312.2024.10578645

Malik, C. D. S. (2024). Technology and women empowerment: Bridging the gender gap in the digital era. International Journal for Research Publication and Seminar, 15(4), 132-126. https://doi.org/10.36676/jrps.v15.i4.19

Marcon, M. D. F., Bet, Y. M., Rojo, C. A., & Parcianello, R. V. R. (2025). The use of artificial intelligence tools in business. In Science and Connections: The Interdependence of Disciplines (1st ed.). Seven Editors. https://doi.org/10.56238/sevened2024.037-169

Marquis, Y. A., Oladoyinbo, T. O., Olabanji, S. O., Olaniyi, O. O., & Ajayi, S. A. (2024). Proliferation of ai tools: A multifaceted evaluation of user perceptions and emerging trend. Asian Journal of Advanced Research and Reports, 18(1), 30-35. https://doi.org/10.9734/ajarr/2024/v18i1596

Millagala, K. (2023). Navigating the confluence of artificial intelligence and social media marketing.

International Journal of Research Publications, 133(1). https://doi.org/10.47119/IJRP1001331920235473

Mishara, P. (2024). The ethical implications of ai in education: Privacy, bias, and accountability. Journal of Informatics Education and Research, 4(2). https://doi.org/10.52783/jier.v4i2.1827

Moravec, V., Hynek, N., Gavurova, B., & Kubak, M. (2024). Everyday artificial intelligence unveiled: Societal awareness of technological transformation. Oeconomia Copernicana, 15(2), 367-406. https://doi.org/10.24136/oc.2961

Muvva, S. (2025). ethical ai and responsible data engineering: a framework for bias mitigation and privacy preservation in large-scale data pipelines. INTERANTIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT, 09(01), 1-8. https://doi.org/10.55041/IJSREM10633

Pasupuleti, M. K. (2024). Transforming Digital Marketing with AI: Strategies for Personalized Content and Ethical Advertising. https://doi.org/10.62311/nesx/66296

Patil, D. (2025). Generative Artificial Intelligence In Marketing And Advertising: Advancing Personalization And Optimizing Consumer Engagement Strategies. https://doi.org/10.2139/ssrn.5057404

Qadri, U. A., Moustafa, A. M. A., & Abd Ghani, M. (2025). They misused me! Digital literacy's dual role in AI marketing manipulation and unethical young consumer behavior. Young Consumers. https://doi.org/10.1108/YC-08-2024-2207

Rahbar, A. (2024). Beyond automation: AI as a collaborative partner in the future of marketing. https://doi.org/10.20944/preprints202411.2122.v1

Rao, T. V. N., Stephen, M., Manoj, E., & Sanger, B. (2025). Exploring bias and fairness in machine learning algorithms: In T. Mzili & A. K. Arya (Ed.), Advances in Computational Intelligence and Robotics (pp. 369-398). IGI Global. https://doi.org/10.4018/979-8-3693-5231-1.ch014

Raut, S. K., Chandel, A., & Mittal, S. (2024). Enhancing Marketing and Brand Communication With AI-Driven Content Creation. Advances in Marketing, Customer Relationship Management, and e-Services Book Series. https://doi.org/10.4018/979-8-3373-0219-5.ch008.

Senyapar, H. N. D. (2024). Artificial intelligence in marketing communication: A comprehensive exploration of the integration and impact of ai. Technium Social Sciences Journal, 55, 64-81. https://doi.org/10.47577/tssj.v55i1.10651

Singh, A., Dhanda, N., Tiwari, S., & Verma, R. (2024). Market segmentation using machine learning and data analysis: A comprehensive study. 2024 15th International Conference on Computing Communication and Networking Technologies (ICCCNT), 1-6. https://doi.org/10.1109/ICCCNT61001.2024.10725035.

Smith, A., & Hutson, J. (2024). From concept to creation: The role of generative artificial intelligence in the new age of digital marketing. Design. https://doi.org/10.36922/dp.4776

Tian, Y., Li, Y., Chen, B., Zhu, H., Wang, S., & Kwong, S. (2024). Ai-generated image quality assessment in visual communication. arXiv. https://doi.org/10.48550/ARXIV.2412.15677