

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON MANAGEMENT AND MARKETING IN MEDIA

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Abstract: The application of artificial intelligence (AI) in media management and marketing has significant potential for improving decision-making processes, efficiency, and risk management. This paper examines four key AI approaches: human-like thinking, human-like behaviour, rational thinking, and rational behaviour—highlighting their relevance to the media industry. AI transforms traditional operations by analysing large datasets, automating tasks, and personalizing strategies, reducing costs and improving campaign outcomes. It facilitates real-time analytics and dynamic campaign adjustments while strengthening target audience relationships through tailored content. However, challenges arise in adapting to unpredictable environments like media management, where creativity and intuition are vital. AI's limited contextual understanding also hinders broader application. The research shows that while AI cannot replace human intuition and creativity, its integration significantly enhances efficiency and strategic planning, especially for digital platforms leveraging audience data for targeted content. Balancing AI's capabilities with human oversight is crucial to maximizing its potential in media management and marketing.

Key words: artificial intelligence, media management, marketing, decision-making, personalization, data analytics, automation, digital media

1. INTRODUCTION

Artificial intelligence (AI) can be defined as "the ability of a system to appropriately interpret external data, learn from this data, and use the acquired knowledge to achieve specific goals and perform tasks through flexible adaptation" [1].

Modern approaches to AI can be classified into four primary groups based on its development and practical applications [2]. The first group focuses on creating machines that think like humans, emphasizing the replication of human thought processes, representations, and outcomes. The second group prioritizes building machines that behave like humans, focusing on the agent's actions rather than the underlying processes. The third group aims to develop machines that exhibit rational behaviour, where rationality is linked to optimality, ensuring these systems consistently perform appropriate actions [3]. The fourth group emphasizes creating machines that think rationally, striving for optimal solutions in planning and decision-making, with a focus on solving specific problems effectively [4].

Managing media operations and marketing are fields with significant, yet underutilized, potential for AI applications. AI supports media management and marketing by enhancing decision-making, strengthening relationships with target audiences, automating processes, and significantly improving the analysis of market research data and audience feedback on media content [5].

The integration of AI across various organizational management segments continues to grow, and media is one of the sectors benefiting greatly from its adoption. Key advantages of AI in media management include improved decision-making, increased operational efficiency, and enhanced risk management [6].

2. IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE IN MEDIA MANAGEMENT AND MARKETING

The successful implementation of artificial intelligence (AI) as a support tool in media marketing requires the development of both technical and organizational factors critical for its effective operation. Studies conducted on samples of project managers across various industries reveal that respondents generally hold a positive outlook on AI's potential as a management support tool [7], [8].

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AI offers a wide range of capabilities, making it a vital resource in media management. Its most notable potential lies in analysing large datasets, identifying patterns, generating insights, and making predictions [9]. This influence is particularly evident in tasks traditionally handled by employees, where AI significantly optimizes processes.

AI stands out as a transformative technology capable of advancing media marketing strategies and activities. Its primary advantage is its ability to analyse complex data sets, positioning it as one of the most indispensable analytical tools in contemporary media management and marketing. In practice, AI has proven exceptionally effective in assessing the needs of media audiences [10]. Furthermore, its application leads to substantial savings in time, human resources, and finances, allowing media organizations to redirect these resources to other areas for enhanced productivity.

The integration of AI has brought revolutionary changes to media operations, influencing every segment of business processes. Its application as a support tool in media management fosters innovation and drives productivity [11]. In marketing, AI enables the collection of high-quality, detailed audience data, improving segmentation and allowing for tailored offerings that align closely with audience desires and requirements. It also facilitates personalized advertising content, reducing irrelevant ads and minimizing audience frustration [12].

AI supports personalization across various marketing activities. Media organizations leverage AI to customize email messages, social media posts, and other communications, enhancing their resonance with target audiences. This approach improves the quality and efficiency of marketing efforts, ensuring that the needs and expectations of audiences are met. By automating tasks previously requiring human intelligence, AI reduces workforce demands, operational time, and costs, leading to significant efficiency gains [13].

AI also minimizes errors in marketing procedures, ensuring consistent performance in specialized tasks under clear instructions and proper supervision. Its ability to accelerate marketing campaigns and reduce costs increases the likelihood of higher returns on investment. AI's capacity for rapid data analysis enables swift decision-making based on real-time campaign data and audience context. This allows marketing professionals to allocate more time to strategic projects that drive long-term growth [14]. Real-time analytics further enable ongoing adjustments during campaigns, offering insights into performance at every stage rather than solely post-campaign evaluations.

In addition, AI has proven highly effective in predicting customer behaviour and enhancing targeted marketing activities by integrating customer data. It is instrumental in developing marketing strategies and revolutionizing the way media organizations attract and retain their audiences [5]. AI significantly enhances audience segmentation by dividing individuals into key groups and allocating them to niches. A key benefit of AI in media marketing is the creation of content tailored to specific individuals or groups, ensuring maximum engagement by offering relevant and value-added content. AI adapts messages and content for targeted audiences, delivering improved suggestions and enhanced personalization for marketing initiatives [6].

However, one significant challenge in applying AI is the frequent misunderstanding of its scope and capabilities. Many tools labelled as AI lack the adaptive and learning characteristics that define true AI. For instance, tools based on simple algorithms for sorting or searching, as well as optimization software for managing reservations or production processes, cannot be classified as AI because their actions are rigidly pre-defined [15], [16].

Another limitation of AI is its inability to generalize learned concepts effectively. While AI can excel at solving highly interconnected problems, its performance diminishes significantly when handling unfamiliar data or operating in varied contexts. For example, facial recognition systems perform exceptionally well with front-facing images but struggle with angled or profile views [5].

Moreover, AI systems lack robustness in dynamic, unpredictable environments typical of media management and marketing activities. They also lack common sense, an inherently human quality built on extensive experience and interaction with the environment [17]. Despite advancements, AI remains limited in performing tasks requiring creativity or adapting swiftly to novel situations. Developing innovative marketing ideas or making nuanced managerial decisions are areas where AI still falls short. For now, AI's role in media management and marketing is primarily confined to tasks that are well-defined and structured [18].

3. DISCUSSION AND CONCLUSION

The application of artificial intelligence (AI) in media utilizes various techniques that enable machines to perform cognitive functions typically associated with human reasoning. While the practical implementation of AI in the media industry is still in its early stages, its potential for significant advancements is undeniable. AI holds considerable promise across all media types, with especially great potential in new digital platforms. These platforms enable two-way communication with audiences, collect and analyse vast amounts of data, and facilitate the creation of personalized content tailored to individual users or specific market niches.

The integration of AI enhances decision-making, improves relationships with target audiences, automates processes, and advances data analysis derived from market research and audience feedback on various media content. In marketing, AI offers substantial opportunities for leveraging cutting-edge technologies that underpin digital media.

However, AI's application in media management and marketing faces limitations, particularly its inability to generalize learned concepts. AI systems struggle with robustness in dynamic, changing, and unpredictable environments—traits that characterize media management and marketing activities. As a result, AI's role in these fields remains largely confined to well-defined tasks.

One of AI's primary limitations is its inability to understand complex contexts or engage in creative thinking. AI operates based on the data it is given and the rules it is programmed to follow. In media, where innovation and quick adaptability to changes are crucial, AI often cannot match human decision-making and creativity. For instance, designing original marketing campaigns or responding to unforeseen crises in media requires a blend of imagination, emotional intelligence, and social skills that AI systems are currently unable to develop.

AI systems excel in specific tasks involving structured and well-defined data but struggle to generalize knowledge from one domain to another. In marketing, this means that AI models designed for analysing one audience segment may underperform when applied to other segments. A practical example is the use of AI for analysing audience responses to marketing content. If the data is sourced from a specific demographic or cultural context, the AI may deliver less reliable results when exposed to different contexts. To illustrate the limitations of AI in practical applications, we tested ChatGPT with a prompt to design a marketing strategy for a new eco-friendly product targeting Gen Z in an unfamiliar cultural context. While the AI provided generic strategies such as 'leveraging social media influencers' and 'emphasizing sustainability,' it failed to address specific cultural nuances or propose innovative ideas beyond conventional approaches. This underscores a critical limitation: while AI excels in processing and analyzing data, it often struggles with tasks requiring deep contextual understanding and originality. Consequently, human creativity and expertise remain indispensable in such scenarios.

AI relies heavily on the quality of data it processes. If the data is incomplete, biased, or outdated, AI systems will produce inaccurate or skewed results. In media, this can lead to misinterpretations of audience behaviour, ultimately affecting marketing strategies and content planning. Moreover, outdated data can result in incorrect predictions, missed trends, or failed campaigns, emphasizing the need for consistent data maintenance.

AI often raises ethical questions, particularly regarding data privacy and bias. Systems that track and analyse audience data may overstep boundaries of user privacy, raising concerns about the ethical use of AI technologies. In marketing, AI-driven personalization can automate tailored advertising to such an extent that users feel shrivelled or manipulated, potentially leading to diminished trust in brands and media platforms.

Media management and marketing often operate in fast-paced, unpredictable environments characterized by sudden trends, crises, or shifts in consumer behaviour. AI, which relies on historical patterns, struggles to adapt effectively to such changes. For instance, AI models based on historical audience behaviour may fail to predict responses to entirely new types of content or events, such as sudden viral trends or global phenomena.

Deploying AI solutions entails significant costs for development, maintenance, and management. Organizations must also hire specialized professionals in data science and AI, creating additional financial and human resource challenges. Smaller media organizations with limited resources may find

it difficult to compete with larger players in implementing advanced AI systems, perpetuating inequalities within the industry. To illustrate the financial and resource challenges of deploying AI, we tested ChatGPT with the following scenario: "Advise a small, regional media organization with limited resources on a cost-effective strategy to implement AI for content personalization and audience engagement, given a 10,000 EUR annual budget and no in-house AI experts." ChatGPT suggested using pre-built AI tools like Google AutoML, Amazon Personalize, or OpenAI's GPT API, outsourcing development to freelancers, or leveraging open-source libraries such as TensorFlow or Hugging Face. While these suggestions appear feasible, they overlook hidden costs like subscription fees, data storage, and system integration, which can exceed the stated budget. Moreover, the reliance on technical expertise assumes resources unavailable to smaller organizations. This highlights a critical limitation: AI tools like ChatGPT often provide generic solutions that fail to account for practical challenges, perpetuating inequalities as larger organizations are better positioned to adopt advanced AI technologies.

While AI automates numerous processes, it cannot replace human judgment and oversight entirely. Media management requires the ability to navigate complex situations that involve political, cultural, or social considerations—areas where current AI systems fall short. Human intervention remains essential to ensure AI operates in alignment with strategic objectives and ethical standards.

AI should act as a support tool, with humans remaining responsible for strategic decisions. At the same time, safeguards need to be included to reduce bias in algorithms and increase transparency in AI operations - in short, transparent and ethical systems need to be developed.

Ethically, the widespread use of AI in media raises important concerns. The collection and analysis of vast amounts of personal data raise privacy issues, particularly when AI is used to target individuals with highly personalized content. There are also risks related to algorithmic biases, where AI systems may unintentionally perpetuate stereotypes or discriminate against certain groups. Furthermore, as AI takes on more tasks traditionally performed by humans, the potential for job displacement and a reduction in human creativity in media production and marketing becomes a significant ethical dilemma. Finally, the over-reliance on AI in decision-making could diminish the role of human judgment, especially in creative and strategic areas where intuition and contextual understanding are critical.

Despite its extensive advantages, the application of AI in media management and marketing faces several significant limitations. These constraints arise from technological, organizational, ethical, and human factors that must be carefully considered to achieve a balanced approach.

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