

Reflections on the Transformation of Mainstream Media in the Context of Artificial Intelligence

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ABSTRACT

Against the backdrop of the intelligent transformation of mainstream media, artificial intelligence (AI) technology has gradually become a key driving force for advancing this transformation. This paper aims to analyze the new model of human-machine relationship in the AI era, conduct an in-depth exploration of the opportunities and challenges brought by AI technology to the intelligent transformation process of mainstream media, and discuss the measures for mainstream media to achieve transformative development by leveraging AI technology in the AI era. The research is intended to provide reference suggestions for the transformative development of mainstream media.

KEYWORDS

Mainstream media; Artificial intelligence; Transformation path

1 Introduction

In recent years, the systematic reform of mainstream media, focusing on content innovation, technology application, and management renovation, has become a key project. As a crucial productivity tool, artificial intelligence (AI) is reshaping the production models and work scenarios of the media industry. However, this process also brings risks in aspects such as content, copyright, and ethics. Studying the transformation path of mainstream media against the backdrop of AI is conducive to improving the quality and efficiency of content production, thereby better adapting to the needs of media convergence and reform.

2 Opportunities for AI-enabled transformation of mainstream media

2.1 Reconstructing the media ecosystem structure

AI has exerted an unprecedented impact on all links of the media industry, from content production and distribution to communication.

2.1.1 Intelligent production processes

By introducing machine learning algorithms, natural language processing (NLP), and computer vision, the processes of media content generation, editing, review, and distribution have been automated and optimized for efficiency. Tasks in news reporting, such as fact-checking and event summarization, can be assisted by NLP technology, which not only reduces labor costs but also enhances the speed and comprehensiveness of information updates.

2.1.2 Diversified content sources

With the help of technologies like data cleaning and web crawlers, media outlets can integrate more diverse information sources, including online media, social media, "we-media," and user-generated content (UGC), thereby improving the diversity of content.

2.1.3 Service model platformatization

Technology-driven intelligentization of the editorial process, interaction of services, and virtualization of employee IP, etc., media to provide customized services around the clock.

2.2 Spawning new models of content production

AI promotes the development of media content production toward higher quality, efficiency, and output, effectively improving creation efficiency and reducing costs.

2.2.1 Automated news writing

Traditional text, image, and video content production relies heavily on manual work, which is costly and time-consuming. By leveraging NLP, speech synthesis, and other technologies, high-quality articles, images, and videos can be generated automatically, significantly shortening the production cycle. For instance, the AI production line of Hangzhou Radio and Television can generate audio files from manuscripts of less than 500 words within 30 seconds, enabling the rapid creation of various types of content materials.

2.2.2 Virtual anchors and AI reporters

Virtual anchors and AI reporters created through virtual reality (VR), computer graphics, and other technologies have brought new forms of content creation and expression to the media industry. For example, AI digital humans such as the "People's Daily AI Editorial Office" have been applied in news broadcasting, human-computer interactive interviews, and co-hosting of entertainment programs, effectively improving service efficiency and user experience.

2.2.3 Personalized content creation

Based on machine learning algorithms, AI can analyze large volumes of user behavior data to conduct user profiling and preference analysis, thereby generating personalized content to meet the needs of different audiences. For example, the "CCTV Algorithm" developed by China Central Television (CCTV) establishes a content funnel model to disseminate high-quality content from niche markets to a broader audience, and further evaluate its communication effectiveness and popularity.

2.3 Promoting innovation in content forms

AI is revolutionizing the forms of media content in unique and unprecedented ways, driving media convergence toward deeper levels and higher standards.

2.3.1 Cross-media form integration

The platform boundaries between traditional media and new media have gradually blurred. Through cross-domain integration and optimized combination of multiple resources, including editorial, technology, and operation resources, the efficiency of integrated development and integrated operation can be improved. In addition, the media's ability to connect with various social systems has been enhanced. With the help of intelligent full-domain data collection and analysis, media outlets can gain a more comprehensive understanding of social trends, quickly integrate resources, and respond to public concerns.

2.3.2 Interactive content design

Through NLP and dialogue systems, AI creates highly interactive content—such as metaverse spaces, virtual assistants, chatbots, intelligent games with personalized user experiences, and intelligent Q&A systems—thereby enhancing users' sense of immersion and participation.

3 Risks of AI involvement in mainstream media content production

From the current development trend of mainstream media, AI technology can directly participate in the production and communication processes according to service needs. It can effectively make up for the shortcomings of mainstream media, improve the efficiency of data, information, and knowledge application and reproduction, and lower the threshold for the real world to enter the digital world. Currently, AI has become a research hotspot in the field of science and technology, achieving remarkable results in both text generation and image creation, and gradually penetrating into all aspects of social life and work. While enjoying the convenience brought by AI technology, we must also pay attention to the potential security issues behind it. Based on the development of AI technology in recent years, the risks and threats it poses are specifically reflected in the following aspects:

First, data leakage. The operation of AI technology relies on large volumes of data, which contain sensitive information such as users' personal data and behavioral habits. If data protection measures are inadequate, it is highly likely to lead to the leakage of user privacy, thereby triggering unnecessary risks.

Second, algorithmic bias. Judging from the current performance of technical algorithms, they are not completely neutral and may be influenced by training data to generate algorithmic bias. For example, if the training dataset contains

biases related to race, gender, or other factors, the generated AI model will inherit such information. Under this circumstance, the algorithm will find it difficult to treat all users fairly, which not only endangers the privacy and security of certain specific user groups but also triggers serious public opinion crises.

Third, malicious use. If AI technology is applied to illegal activities such as fraud and cyberattacks, it is likely to be used to generate false information, misleading some members of the public to participate in illegal or non-compliant behaviors. Ultimately, this will bring huge economic and security risks to individual users or the social economy.

4 Paths for AI-enabled transformation of mainstream media

4.1 Readjusting development orientation

In the new era, the communication and development pattern of traditional media has undergone changes, and the credibility and influence of mainstream media have been seriously affected. How to adapt to the increasingly competitive market environment and demonstrate its unique advantages is an important issue that the mainstream media industry needs to explore in its transformation and development. The key lies in readjusting the development orientation and clarifying future development goals. With the continuous increase in the number of information media, the development environment of the media industry will become more complex in the future, and the requirements for the production and communication of mainstream media will also become higher. Strengthening the technology platforms of traditional mainstream media through the algorithm mechanism of AI technology can provide high-quality service experiences for user groups.

First, it is necessary to fully stimulate the enthusiasm of multiple subjects for production and creation, continuously enhance the vitality of news production and communication, guide more audiences to become news producers, creators, and communicators, actively participate in the guidance of mainstream public opinion, and demonstrate the social value of mainstream media. Second, based on the empirical logic of the development of the mainstream media industry, it is necessary to provide service support for user groups, clarify media industry rules that meet the requirements of the new era, and ensure that various business services are implemented in accordance with the requirements. Finally, attention should be paid to maintaining the credibility and authority of the transformation and development of mainstream media. A scientific and standardized service platform should be established based on the technical algorithms in the AI era, so as to effectively coordinate the cooperative relationships among various subjects and lay a solid foundation for information production and communication.

4.2 Emphasizing empowerment through technological development

With the continuous development of social economy and science and technology, scholars at home and abroad have clarified the inevitable direction of the transformation and development of mainstream media based on existing research results and theoretical knowledge. There are also more and more applied research on AI technology theories, which have achieved remarkable results in both content generation and data-driven links. From the perspective of the development of the mainstream media industry, automated news and news robots have also begun to participate in production and communication. As one of the commonly used tools in the media industry, AI is mostly used for the programmatic writing of news, but the quality of news cannot be guaranteed. The reason is that journalists must possess professional ethics and professional sensitivity, have strong investigation and creation capabilities in practical work, and be proficient in using complex languages in writing innovation. In contrast, "robots" only complete news writing and reporting within a specified scope in accordance with pre-set target programs. Although "robots" can reflect the application advantages of AI technology in a short period of time, it is not conducive to the innovative development of AI and mainstream media. From the perspective of the long-term development of the social economy, to realize the transformation and development of mainstream media using AI technology in the AI era, it is necessary to not only demonstrate the capabilities and qualities of professional staff but also reflect the professionalism and innovation of intelligent technology. Therefore, it is essential to transform the instrumental support of technology into companion-based support.

From the current perspective of the transformation of mainstream media, as a basic component of the development of the media industry, journalists should actively adapt to the increasingly competitive market environment, always adhere to the user-centered service concept and integrate it into mainstream media services, and rationally use AI technology to complete basic work such as data collection, data analysis, and data sorting. After mastering more news materials, they can complete the generation and communication of news in the AI era based on unique writing perspectives and in-depth content reports. In this process, the companion-based support of AI technology will deeply integrate the subjectivity of journalists with the intelligence of AI, thereby creating a market environment where humans and machines coexist harmoniously, improving the quality of news reports and the efficiency of practical work, and thus forming a new-type media support system that is systematic, efficient, and comprehensive.

With the expansion of the application scope of AI technology, the business threshold for staff in mainstream media has become lower, and the scope of information dissemination has become wider. From the perspective of grassroots business, under the trend of the transformation and development of mainstream media, the requirements for news services will become higher in the future. From the perspective of practical application, the companion-based support of AI technology has intelligent Q&A functions and text production capabilities. After learning a large amount of corpus information, it can automatically generate texts in various formats such as dialogues, news, and official documents, which can facilitate journalists in content classification, language correction, and other work. As the amount of collected and sorted data increases, the technology platform can accurately judge the emotional color contained in the text, help staff analyze the emotional changes of news commenters, and assist in completing public opinion analysis, supervision, and guidance.

4.3 Focusing on cross-industry integration and innovation

After expanding the development scope of the media industry, AI technology leads society to develop steadily in the direction of intelligence, digitalization, and modernization. The application and innovation of various media have built a complex media ecosystem. Against this background, the transformation of mainstream media places greater emphasis on cross-industry integration and innovation, which is specifically reflected in the following aspects:

First, the formation of multiple subjects in a complex environment. Under the trend of economic globalization, facing the increasingly close trade, cultural exchanges, and cooperation among countries around the world, the cross-industry integration and innovation of mainstream media has gradually formed multiple subjects, which assume responsibilities such as information dissemination, social relationship construction, and network services.

Second, the elimination of boundaries in an open system. With the support of AI technology, traditional media industry has realized information sharing and value circulation with smart cities, smart healthcare, smart transportation, and other fields, and demonstrated unique value in their organic integration.

Third, the co-creation of technological value. After mainstream media in the AI era establish good cooperative relationships with other industries, they become stakeholders of each other. There are intersections in communication channels, production content, and diverse values, and they gradually form symbiotic relationships at different levels. This can realize the rational allocation of media production resources and promote the industry to move toward the goal of cross-industry innovation and integration. For example, at present, most county-level media convergence centers in China have been increasingly improved, but their scope and ability to participate in grass-roots social governance are still weak. AI technology can be used to design and develop standardized and reasonable connection channels, and establish information service platforms that are consistent with local economy and people's livelihood. This can ensure the orderly implementation of grass-roots social governance work and form an intelligent management system.

5 Conclusion

In summary, in the AI era, intelligent technologies represented by AI not only provide strong support for the production, communication, and services of mainstream media but also bring new opportunities and challenges. The transformation and development of mainstream media must always adhere to the people-oriented concept, correctly respond to the impact and challenges of AI technology, and continuously improve the existing public infrastructure, so as to better meet the media service needs of the general public.

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