

Examining the Viability of AI-Generated Content in Revolutionizing China's News and Communication Industry: A Case Study of Xinhua News Agency

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Abstract: In recent years, artificial intelligence(AI for short)technology has continuously emerged and empowered various fields such as medical finance and e-commerce live broadcasting, but the development of enabling news and communication industry is currently lacking in discussion and attempts. This paper uses Xinhua News Agency as a case study and employs comparative and feasibility analysis methods to explore the challenges encountered during the digital transformation of the traditional news communication industry. It assesses the potential of AI-generated content (AIGC) to tackle these challenges, demonstrating AI's ability to enhance audience reach, improve content accuracy, and personalize news delivery. By examining the intrinsic connection between AI-generated content technology and the news communication process, this study underscores AI's pivotal role in driving unique digital transformation within the traditional news communication sector. Nevertheless, the paper acknowledges the current insufficiency of data supporting Xinhua News Agency's AI news production. Future research should prioritize the collection and analysis of case data to facilitate a more comprehensive discussion.

Keywords: Artificial intelligence generated content, Xinhua News Agency, Communication path, Digital transformation.

1. Introduction

The application of the new generation of digital information technology in China is becoming more and more mature, and the rapid development of AIGC has brought great changes to people's lives. The usage of AIGC in text and image generation has become increasingly mature. Since 2021, numerous leading internet companies, both domestically and internationally, have launched various models for generating text and images. These models have achieved significant success across multiple application areas and have led to the release of numerous software and hardware products for users[1]. In the era of financial media, technology has become a key factor in media competitiveness. In recent years, the application and communication effect of AIGC technology in domestic leading news communication industry is remarkable. China's Xinhua News Agency has capitalized on the opportunities presented by 5G technology, enhancing its use of artificial intelligence in news production. By integrating satellite technology and the Internet of Things with news reporting, Xinhua

has innovated its communication methods, improved production efficiency, and diversified reporting formats. This approach has introduced news patterns characterized by advanced technology and pioneered new avenues for innovative news reporting.

This paper uses Xinhua News Agency as a case study, employing comparative and feasibility analysis methods to explore the challenges of digital transformation in the traditional news and communication industry. It examines the potential of artificial intelligence-generated content (AIGC) to address these challenges. By investigating the intrinsic connection between AIGC technology and various news communication processes, the study demonstrates how AIGC can enhance audience reach and engagement, improve the accuracy and personalization of news content, and ultimately drive the unique digital transformation and progress of the traditional news and communication industry.

2. Overview of generative AI

2.1. The Definition of Generative AI

Unlike analytical AI, which focuses on interpreting existing data, or predictive AI, which deduces output from a given input, generative AI focuses on generating new content, or synthetic data[1]. Generative AI is a type of artificial intelligence that creates new content and ideas, such as video, audio, and text. It can improve the quality of digital images, edit videos, rapidly build manufacturing prototypes, and enhance data with synthetic data sets.

In 2017, OpenAI developed the GPT series model and cultivated the artificial intelligence phenomenon tool ChatGPT, which promoted the AI related research to take a key step in the direction of general intelligence. ChatGPT has shown the ability to be close to human in the tasks of human-computer interaction, dialogue, document generation, etc., which has attracted wide attention from the industry and the public. Other AIGC large model applications have also been integrated into various industries, attracting hundreds of millions of users. In addition to the large models proposed by other foreign organizations such as BRET, PaLM, OPT, BLOOM, LLaMA2, midjourney and GPT4, China has also made remarkable progress in the field of AIGC large models. These include Tsinghua University's ChatGLM, ChatGLM2 and WEBCPM, Baidu's Wenxinyi, Ali's Tongyi Qianwen, Fudan University's MOSS, and Harbin Institute of Technology's Sayer Lab's "Movable Character 1.0" and "Movable Character. Two versions of the 2.0 "large language model, the Chinese Academy of Sciences of Purple East Taichu and Huawei's Pangu and other large models. The continuous advancement of these models is driving the advancement of artificial intelligence technology, opening up new possibilities for more intelligent human-computer interaction experiences[2].

2.2. Characteristic analysis of AIGC

In 2017, OpenAI developed the GPT series model, including ChatGPT, advancing AI research toward general intelligence. ChatGPT's near-human capabilities in tasks like human-computer interaction, dialogue, and document generation have garnered significant industry and public attention. Other AIGC large model applications have been integrated into various industries, attracting millions of users. In addition to foreign models like BERT, PaLM, OPT, BLOOM, LLaMA2, Midjourney, and GPT-4, China has made notable progress with models such as Tsinghua University's ChatGLM and ChatGLM2, Baidu's Wenxinyi, Ali's Tongyi Qianwen, Fudan University's MOSS, and the Harbin Institute of Technology's Sayer Lab's "Movable Character" series, the Chinese Academy of Sciences' Ziyue Taichu, and Huawei's Pangu. These advancements are driving AI technology forward, enabling more intelligent human-computer interaction experiences.

2.3. Analyzing the Challenges of Traditional News Communication

The current social environment and media ecology have undergone profound changes, and the traditional news media are absent and speechless in reporting some major public events. Part of the reason is that the news and public opinion management concepts in some places have failed to keep up with the development of the situation and the changes in the communication trend, and their role positioning has deviated and unbalanced, and the content of communication is divorced from the needs of the masses. Such a situation leads to the failure of traditional media to deliver information in a timely and effective manner at critical moments, losing their influence and credibility on the audience.

In addition, in the new media environment, audience reading habits, the news communication landscape, and discourse systems have all significantly changed. Some traditional media still adhere to the inherent standard of "what content is reported, what content must be accepted", and fail to put users in the first place of news reporting. This approach prevents traditional media from adapting to new communication patterns. In hot events and emergencies, traditional media often act too cautiously, repeatedly weighing the content of their reports. This results in an incomplete presentation of events, and sometimes, to be prudent, they delay or refrain from reporting, further weakening their competitiveness and influence.

3. AIGC empowers news dissemination

3.1. AIGC enables the development path of news communication

Traditional news production is a one-way linear structure that starts from journalists, editors and other professional subjects, and delivers news to the audience through the links of gathering, writing, editing and publishing. Through process mining, algorithm resource optimization, three-dimensional interactive distribution and so on, AIGC technology can make any link in the middle of news production produce jump interconnection, and the news production in process coordination moves towards a multi-network production structure.

The path of AIGC empowering journalism can be divided into three phases. Initially, data content is integrated and processed through algorithmic logic, creating a database of text, sound, and video, while news production robots start structured production through corpus learning. Next, intelligent algorithms enable integrated news production and distribution, forming a new editing model that, though not initially equal to professional standards, attracts professionals to create original articles. Finally, with the rise of the "metaverse" concept, news production evolves towards immersive experiences using digital twin technology for multi-perspective and multi-sensory exploration, expanding the sensory dimensions of journalism. As intelligent algorithms mature, AI progresses from basic "news writing robots" to understanding human language and societal norms, resulting in increasingly diverse news content and production forms.

China's Xinhua News Agency's "AI synthetic anchor" is a good example of this. During the national "Two Sessions" in 2021, the AI synthetic anchor jointly built by Xinhua News Agency and Sogou Company is a model. The AI synthetic anchor can realize free "crossing" through the "New Cube" intelligent studio of Xinhua News Agency, construct the scene with five-sided LED screen, and combine the multi-angle three-dimensional stitching technology to realize the interleaving of real space and virtual space, creating a new pattern of news report [3]. At present, AI synthetic anchors have physical features, voice movements and facial expressions that are quite similar to those of human anchors[4]. With the blessing of the algorithm, the AI synthetic anchor can interact with the human anchor at the same frequency. AI synthetic anchors are not limited by space when interviewing and broadcasting, and can "cross" multiple scenes in real time, bringing unprecedented news

experience to the audience, which is not only an important achievement of the in-depth promotion of media integration in the new era, but also provides a rich audio-visual experience for users' news reception.

3.2. Case study: AIGC empowered news dissemination

On the eve of the Two Sessions of China in 2022, Xinhua News Agency's technical team utilized 5G melt screen and immersive technology to innovate scene presentation and filming. They used the studio to create a proportional replica of the interview subjects' location, achieving a virtual interleaving of two real spaces[5]. The first article, "Heaven and Earth Melting screen | Wang Yaping tells the story of performing duties in space", "moved" the Chinese space station into the studio. In the third phase of the interview, the host virtually traveled to the edge of Erhai Lake using melt screen technology, where they met Xiaoxue Yang, a National People's Congress deputy who has been dedicated to protecting Erhai Lake for 31 years. AI real-time image tracking technology was employed to synchronize reflections with the figures, achieving realistic shadow movement, enhancing the three-dimensional sense of space, and further upgrading the realism of the melt screen interview.

During the reporting of the two sessions, in order to update the visual and auditory functions in all aspects, Xinhua News Agency built a "new Cube intelligent studio", where AI anchors can report across scenes and host cross-screen interviews with real people. The "New Cube" studio uses a five-sided intelligent LED screen, and expands the total area of the studio to nearly 400 square meters through the three-dimensional stitching technology of the LED screen. The "New Cube" studio realizes immersive content presentation, provides full-field and multi-dimensional support for news interaction, and makes participants feel as if they are in it and feel a unique and pleasant sense of existence. To make the images better, Xinhua also had to solve the problem of camera positioning in the 3D environment. Because of the 3D effect, there are high requirements on the Angle of the lens [6].

Many large news organizations (such as British Broadcasting Corporation, The Guardian, Forbes, The Washington Post, Los Angeles Times, and The New York Times) and news agencies (such as the Associated Press and Reuters) now have assigned weather, stock exchange movements, corporate performance and sports stories to computers. This shift acknowledging that machines can be more rigorous and comprehensive than some reporters[7].

4. Feasibility analysis of AIGC enabling news communication

In the government Work Report of the National Two Sessions of China in 2024, the "artificial intelligence +" action was proposed, emphasizing the "artificial intelligence +" action to build an internationally competitive digital industrial cluster. China Internet Development Report 2023 shows that from 2012 to 2022, the scale of China's digital economy will grow from 11 trillion yuan to 50.2 trillion yuan, ranking second in the world for many years, and the proportion of digital economy in GDP will increase from 21.6% to 41.5%. In the field of artificial intelligence, China's research strength has been continuously strengthened, and a high-quality scientific research team has been formed. According to statistics, nearly 200 universities in China have set up artificial intelligence-related majors, and many universities have also set up artificial intelligence colleges. In addition, the number of patent applications in the field of artificial intelligence in China has also shown a rapid growth trend.

4.1. AIGC Enabling News Communication: Strengths and Opportunities

AIGC brings numerous strengths and opportunities to news communication. Traditional news organizations possess extensive material libraries at every stage of information collection, production, editing, and distribution, creating a substantial news information database for AIGC to utilize. They also have an established audience base, providing a strong foundation for AI-generated news. The structured systems of traditional news production, operated by professional staff, offer a solid framework for AI to expand and innovate.

Opportunities include significant market potential, as the proportion of AI news production in China is relatively small, leaving ample room for growth. AIGC's massive data library can cater to diverse user needs, making AI news production more engaging. Additionally, the Chinese government's support for the "AIGC+" model encourages the integration of AIGC with other technologies.

By leveraging AIGC's core advantages in technical data and models, and integrating with 5G and the Internet of Things, the traditional news industry can enhance production efficiency and quality. With China's strengthened national power and continuous advancements in AI technology, the application of AI in various fields, including news, medicine, finance, and agriculture, plays a crucial role in the country's industrial upgrading and transformation.[8]

4.2. AIGC Enabling News Communication: Weaknesses, and Threats

AIGC enabling news communication faces several weaknesses and threats across different stages of development and operation. Initially, many staff members in the news industry lack maturity in their understanding of AI-enabled news production, sticking to traditional methods without innovating. During the operational phase, there is a need for personnel skilled in AI technology to ensure the success of AI news production, but a shortage of such talent hinders small and medium-sized news industries from implementing this technology effectively. In the later stages, AIGC technology sometimes fails to adequately protect user and company privacy, leading to low privacy security performance. Additionally, data breaches pose a significant risk, as other organizations, startups, and technology companies can produce news faster than traditional journalism, often without editorial departments and by stealing content. Copyright issues also arise since AI-generated content is typically based on large data inputs and intelligent algorithms, raising concerns when protected information is used without authorization. Lastly, the risk of private information leakage remains a significant threat for both users and the news industry.

4.3. AIGC Empowering News Communication: Development and Improvement

AIGC significantly enhances news communication through several strategic initiatives. Technologically, ongoing advancements such as small program voice recognition ensure precise content analysis and recognition capabilities. Operationally, news personnel rigorously supervise and manage potentially inappropriate content, including monitoring for and addressing issues related to pornographic or violent material during AIGC-assisted news production. Systematically, there is a focused effort to refine and optimize the operational chain of AI-generated news, aiming for sustained development and efficiency gains.

Monitoring processes involve meticulous oversight of the AI news database, which aggregates global information and undergoes regular scanning and modification to address vulnerabilities and ensure data integrity. Additionally, strategic monitoring of AI news production directions involves tracking developmental milestones, assessing content quality, resource allocation, and making necessary adjustments to maintain alignment with objectives. Detailed progress records and feedback

mechanisms are integral to informing current operations and facilitating smooth transitions between project phases.

In terms of industry strategy, efforts are directed at phasing out outdated technologies to stay abreast of technological advancements. This includes accelerating the replacement of obsolete equipment through systematic technical upgrades and transformations. Continuous investment in cutting-edge technologies remains a cornerstone for expanding and diversifying news communication capabilities, ensuring ongoing relevance and competitiveness in a rapidly evolving media landscape.

5. Conclusion

This article explores the integration of AI in news dissemination, highlighting China's Xinhua News Agency as a leader in deploying AI and 5G technology during events like the two sessions. It showcases how AI-generated content (AIGC), exemplified by models such as ChatGPT, along with advancements in China's AI capabilities, has transformed content creation. Innovations like AI synthetic anchors and sophisticated studio setups have enriched the news experience, yet they also pose challenges, particularly regarding privacy, data security, and the adaptation of traditional news personnel to AI technologies. Achieving a harmonious integration of AI in news production necessitates balancing technological progress with ethical considerations to safeguard user privacy and uphold content integrity. Moreover, while AI promises enhanced efficiency and broader audience engagement, successful implementation demands substantial investments in technical infrastructure and extensive staff training.

However, the data supporting Xinhua News Agency's artificial intelligence news production in this article are inadequate. Future research should prioritize sorting and analyzing case data to facilitate a more comprehensive discussion.

References

- [1] *AIGC In China: Current Developments And Future Outlook* Xiangyu Li 1 , Yuqing Fan 2,3 , Shenghui Cheng 2,3
- [2] *The Future and Challenges of Generative AI Industry Development*, Hou Hong, *Tsinghua Management Review*, 2024.04
- [3] *Innovation Path of Transformation and Development of Traditional Media in AIGC Era*, Zhang Shuangyan, *Exploration of All Media*, 2024.01
- [4] *Artificial Intelligence and Journalistic Practice: The Crossroads of Obstacles and Opportunities for the Pakistani Journalists* Sadia Jamil
- [5] *"The Dilemma and Breakthrough of Traditional Media News Communication in China,"* Jing Ming, *Wu Xingxing*, *News and Communication Research*, 2016.08
- [6] *Research on the New Trend of Deep Media Integration in the 5G Era -- Taking 5G Practice of Central Mainstream Media as an example*. Liang Zhen, *News Research Guide*, 2022,13 (14)
- [7] *Analysis on Innovation of News Broadcast by AI Synthetic Anchor of Xinhua News Agency*, Xiao Lei, *Media*, 2022.08
- [8] *Xinhua News Agency AI Anchor News Report Research*, Sun Yufeng, Yang Juanchen, *News Outpost*, 2024.02