

Opportunities, Challenges and Optimization of News Gathering, Editing and Publishing under AIGC Technology

Kunyu Li

Yantai Institute of Technology, Yantai, Shandong, 264003, China

ABSTRACT

The traditional news broadcasting model has given rise to issues such as high corporate editorial costs, intensified competition from homogeneous content, and potential accuracy risks in breaking news reporting. While AIGC (Artificial Intelligence Generated Content) is playing an increasingly vital role in reshaping the media landscape, enabling personalized news customization, intelligent transformation of news gathering and dissemination, and boosting reporting efficiency, it also brings challenges including misinformation risks, copyright disputes, low technical adaptation thresholds, failure to meet the diverse interactive expectations of younger audiences, and growing trust crises among aging demographics. Confronted with these unavoidable challenges in the intelligent media era, the journalism industry should establish robust academic accountability mechanisms for AIGC, build regulatory frameworks for technology, eliminate negative impacts, and unleash the inherent potential of content production and dissemination.

KEYWORDS

AIGC; News production; Artificial intelligence

1 Technology-driven: AIGC reconstructs the whole process of news production

1.1 AIGC realizes intelligent upgrading of the whole chain of news production

The traditional news production model, which relies on manual collection, writing, and editing processes, has become inadequate to meet modern societies demands for content quality and efficiency under the influence of AIGC technology. This transformation requires journalists to achieve precision in material gathering, intelligent analysis of information, and automated news generation, driving the industries shift from labor-intensive operations to technology-driven models. A Shen Zhen is Shenzhen News Networks "Big Data Multimedia Unified Analysis System", which flow the entire data lifecycle from collection to utilization. By enabling centralized storage, smart analysis, and data mining, it provides comprehensive support for intelligent multimedia dissemination, covering everything from topic selection to content distribution ^[1]. In this age Powered by AIGC overload, AIGC-powered news generation significantly reduces costs while boosting efficiency, reshaping traditional medias influence and revitalizing content creation capabilities.

1.2 Four-dimensional practical paths of AIGC enabling the whole process reconstruction of news production ^[2]

The impact of AIGC's model on news production is difficult to quantify, yet its advantages are already emerging. Trends such as efficient production models, precise scenario applications, personalized content delivery, and maximized economic benefits are becoming evident. With technological advancements, the boundaries between news gathering, editing, and dissemination continue to blur, with efficiency becoming the core trend. Human-machine collaboration and cost reduction through improved efficiency serve as key pathways to achieve this goal, with practices from authoritative media serving as exemplary models. Xin Hua News Agency leverages AI anchors like "Xin Xiaohao" and intelligent writing systems to generate standardized news content—such as financial reports and weather updates—in seconds. During a sudden rainstorm in a certain region in 2023, AI first captured meteorological data and traffic information, generating the first breaking news report within 15 seconds. Editors then focused on detailed on-site coverage, significantly shortening the production cycle.

The AIGC model, which integrates AI writing, AI painting, AI imaging, digital human technology, and immersive news production, has gained widespread recognition. Practical examples of digital virtual reconstruction include The Papers innovative use of digital twin space technology during the 2024 Two Sessions to revolutionize news formats, such as creating interactive scenarios for delegates and committee members. The LBE Large Space VR Archaeology Project at San xingdui Museum, referencing the "White Paper on Digital Dissemination of San xingdui Archaeology," demonstrates its technical principles and reconstruction accuracy. Its user experience design was validated by Sichuan Network Radio and Televisions "VR Immersive Exploration of San xingdui Sacrificial Pit Sites." These developments clearly indicate that large-scale immersive news production has become a universal cultural pursuit, while the concept of precise news scenarios has emerged as an inevitable outcome of reconstructing the entire news production process.

2 Efficiency revolution: AIGC reshapes the news production efficiency system

2.1 Content generation efficiency increases exponentially ^[3]

During news gathering, journalists utilize "Live Cloud" platforms and mobile devices with voice recorders to initiate live broadcasts while simultaneously collecting text, images, and video materials. In content production, Xinhua News Agency leverages its "Media Brain" system and AI anchors to transform raw materials into multimedia products including articles and data journalism. Distribution relies on user profiling for targeted recommendations, while blockchain technology ensures precise dissemination effect evaluation. In specialized fields like finance and sports reporting, during the 2025 September Third Military Parade welcoming ceremony, journalists achieved comprehensive coverage through cloud-based scenario collection and real-time CGTN updates, delivering a full-chain presentation of the spectacular military parade. Since establishing its automated reporting team in 2014, the Associated Press has deeply integrated AI into sports and financial news production. Their collaboration with Automated Insights developed the Wordsmith system, which analyzes corporate financial data within seconds to generate revenue analysis and trend forecasts, increasing quarterly financial report coverage from 300 to 3,000 companies with 12-fold efficiency improvement. Pioneering human-AI collaborative writing includes Tencent's Dreamwriter intelligent writing system working closely with human editors, where AI handles initial drafts of standardized reports in sectors like finance and sports, while human editors focus on in-depth analysis and value assessment.

2.2 Data analysis personalized push and insight leap

In February 2020, Reuters partnered with AI developer Synthesia to launch a virtual sports anchor. This AI-driven host perfectly mimics human announcers in both appearance and voice, delivering event summaries based on Reuters text reports and photos. The system automatically generates and presents content without human involvement, achieving full automation in sports coverage. During the U.S. election period, the conversational AI TrumpboE not only delivered targeted updates but also analyzed readers preferences to deliver personalized content.

3 Core risks: false information, privacy invasion and algorithmic bias ^[4]

3.1 False information disturbs the foundation and the model is reliable in crisis

The application of AI technology in journalism carries multiple risks. For instance, the Associated Press Wordsmith system once misinterpreted satellite data, incorrectly rendering buildings in Gaza as "completely destroyed" instead of "potentially damaged," leading to distorted international public opinion. A 2024 test by The Paper revealed that Chat GPT's responses to updates about the Turkey earthquake became completely ineffective due to its data being stuck in 2021. These cases highlight the need for stricter review mechanisms and ethical guidelines to address algorithmic black boxes and data quality issues. Such problems often stem from biased data collection processes, outdated information, or data contamination. Moreover, some self-media outlets, in pursuit of content innovation and authenticity, overlook the repetitive nature of AI-generated news. When they intentionally ignore regional, ethnic, or religious characteristics, this leads to distorted narratives that deviate from factual reality. Training data and algorithm models may then reinforce specific biases through misleading practices.

3.2 Privacy invasion, private domain algorithm bias and false news

The application of AI technology in news dissemination has triggered three major challenges: information echo chambers, privacy protection issues, and algorithmic bias. The precision recommendation algorithms based on user interests lead to content homogenization, forming cognitive loops. A 2023 survey by China Youth Daily revealed that 62.2% of respondents felt "big data + algorithms" narrowed their information channels ^[5]. Meanwhile, 2023 data from Fudan University's Communication Lab showed that an algorithm on a short video platform prioritized negative information by 76% in exposure weight, exacerbating social anxiety. Although the 2025 "Regulations on Public Security Video Image Information System Management" explicitly prohibits installing cameras in sensitive areas like hotel rooms, 65 apps were still reported for illegally collecting personal information ^[6].

4 Core challenges of AI and media convergence: four dimensions of technology, ethics, law and talent

Despite the broad prospects of AI+ media, it still faces multiple challenges.

Technically, natural language processing (NLP) systems still face limitations in understanding contextual nuances,

emotional nuances, and cultural subtleties. Particularly when handling complex linguistic phenomena like irony and metaphor, the "black box" nature of algorithms means that once citizens' privacy is compromised, AI may incorporate cognitive biases into its algorithmic design based on distorted data. This could lead to deepening news distortion and information chaos. If malicious misleading content is injected, it could exacerbate the spread and escalation of rumors, significantly impacting political stability, economic development, and national security^[7]. Furthermore, in soft news scenarios, algorithmic discrimination and biases in training datasets may be amplified by AI systems, resulting in discriminatory content production and distribution. For instance, personalized news platforms might filter out financial news for residents in remote areas based on algorithmic assumptions^[8]. While the quality of multimodal content generation continues to improve, there remains a gap between AI-generated works and human creators in terms of creativity and artistic value. Comparing AI-generated virtual hometowns with real-world documentary footage reveals that behind the "perfection" of tech-generated content lies a lack of the artistic tension born from human creators' "trial and error" and "chance discoveries."

Ethically, the proliferation of misinformation through Deepfake technology has reached alarming levels. The Deepfake technology that emerged in 2019 has now evolved to such an indistinguishable degree that it poses a severe challenge to news authenticity. Ultimately, upholding journalistic integrity must rely on the professional expertise and social responsibility of human journalists—As AI continues to advance in efficiency and scale, Humanities' capacity for deconstructing complex realities remains their replicable core competitiveness that technology can never replicate.

In terms of legal regulation, existing laws and regulations struggle to fully keep pace with the rapid development of AI technology. Copyright issues are particularly prominent, as questions regarding the ownership of AI-generated content and the legality of using training data require clear legal definitions. When discussing media art creation supported by AIGC technology, whether its originality aligns with traditional definitions has become a focal point. Generally speaking, the creative thinking from scratch cannot be equated with the complex algorithms and massive datasets that power AIGC. Moreover, accountability mechanisms for AI-generated content need improvement. When AI-generated content causes harm, determining responsibility becomes challenging. While creative works retain copyright to their creators, there remains debate over whether AI-produced news possesses independent copyright^[9]. Talent challenges also demand attention. The AI era requires interdisciplinary professionals who understand both journalism and technology applications, yet cultivating such talent demands significant time and resource investment. Traditional media institutions face considerable pressure in talent restructuring and need to establish new mechanisms for talent recruitment, training, and incentives. As media integrates into the AIGC ecosystem, they should prioritize talent development upgrades to maximize human capital's core role in the intelligent media era and expand journalists' career prospects. First, media organizations should... First, we should enhance the technical expertise of news gathering, editing, and broadcasting teams by deepening their understanding of AIGC technology and cultivating practical application skills. This will help journalists adapt to the intelligent media era more effectively. Second, based on the differences between traditional human-generated news production and AIGC-driven journalism, we should implement targeted skill development programs for editorial professionals to address the limitations of AIGC in news creation^[10].

5 Marxist view of journalism: Strategies for news gathering, editing and distribution

Fundamentally, Marxist journalism prioritizes truthfulness, objectivity, and timeliness as its core principles, asserting that "truth is the lifeblood of news." While AI can efficiently process massive data sets, it lacks the on-the-ground perception and factual judgment inherent in human journalists. Therefore, even when AI handles preliminary tasks like data collection and framework construction, journalists must still adhere to the "truthfulness and objectivity" principle, integrating this ethical framework throughout the entire algorithmic workflow.

Secondly, Marxist journalism principles require media organizations to balance independence with social responsibility, ensuring the unity of Party principles and public interests. While AI can automatically generate news content, it cannot replace human journalists' value judgments and professional stance. The algorithm-driven production process prioritizes computational efficiency over ethical considerations. Mainstream media practitioners must rigorously guide and review AI-generated content by integrating social benefits and public welfare attributes into their editorial workflows.

Thirdly, Marxist journalism theory emphasizes that news dissemination must adhere to value principles while maintaining diversity and proper guidance. Although AI can automate news production processes, it struggles to deliver diverse and personalized reporting. In the AIGC era, practitioners must enhance their data and multimedia capabilities, verify information through multiple sources, and the industry needs to establish self-regulatory mechanisms and standards to ensure high-quality development.

In conclusion, while AI can provide technical support for news dissemination, it cannot replace the value judgments and social responsibilities of practitioners. Mainstream media must be guided by Marxist journalism principles,

integrating these methodologies into technological practices. Only when practitioners and media organizations clearly define their own responsibilities can they adapt to the development of the digital era ^[11].

6 Trend Outlook: AIGC drives paradigm shift in journalism

AI+Media is not merely a technological replacement, but rather an evolution toward a new ecosystem of human-AI collaboration and symbiosis. In this ecosystem, both humans and AI leverage their respective strengths to co-create richer, more diverse, and higher-quality media content. Human journalists remain irreplaceable—— Their professional expertise and humanistic care are crucial in areas like in-depth investigations, emotional resonance, and value judgments. Meanwhile, AI excels at processing massive data, uncovering hidden patterns, and boosting productivity. Only through their synergy can we achieve a 1+1>2 effect. Future media organizations will be intelligent entities that integrate human-AI collaboration, where AI not only empowers content creation but also reshapes organizational structures, workflows, and business models. Media professionals must embrace this transformation, learn to collaborate with AI, and harness humanity's unique creativity and critical thinking. As communication scholar James Carey noted, communication is not just about information transmission but also cultural preservation. In the AI era, we must prioritize how technology serves human needs while maintaining media's social responsibilities and cultural missions. Only through this approach can AI+Media truly drive sustainable development in the media industry and better serve public interests.

In conclusion, the world is entering a new era of intelligent communication, with the media industry at the forefront of this transformation. Embracing AI, leveraging AI effectively, and regulating AI properly will be the essential path for future media development. Throughout this process, maintaining a balance between technological rationality and humanistic spirit, while upholding media's social responsibilities and professional integrity, is crucial to enabling artificial intelligence to truly empower the media and create value for society.

References

- [1] Feng Wenlu. (2024). The Practice of Digital and Intelligent Transformation in Mainstream Media—— Analysis Based on Case Studies of "China Media Intelligence". *Journal of Journalism*, (08),57-60.
- [2] Zhao Yilin (2024). Opportunities and Challenges of AIGC in News Production. *Media*, 22(45-47).
- [3] Xiong Zhengyan. (2025). Journalists firmly embrace AI, but how to avoid being replaced by AI? —— Insights from the application of artificial intelligence in the world's four major news agencies. *China Journalist*, (01),47-50.
- [4] Bi Wenjia & Li Yujie (2024). Tracing the Impact and Regulating Mechanisms of AIGC on News Authenticity. *All-Media Exploration*, 09:115–117.
- [5] Wang Pinzhi & Ding Xiangxueyu. (2023-07-14). How Young People Can Break Free from the "Information Cocoon": *China Youth Daily*, 003.
- [6] Breaking the "Information Cocoon" Weaves by Algorithms [N]. *Legal Weekly*, December 5, 2024.
- [7] Zhu Lingyu, He Jing & Tian Ye (2024). Exploring the Application and Potential Risks of AIGC in Media. *Media*, 2(02),47–49.
- [8] Zhou Zhihan (2019). A Review of Algorithmic Studies in Western Journalism and Communication. *Journalist & Communication*, (04),93-96.
- [9] Wang Zhihui, Fu Liya & Liu Shi (2024). The Future of Media Art Education in the AIGC Era. *Media*, 19(19-21).
- [10] Zhao Yilin (2024). Opportunities and Challenges of AIGC in News Production. *Media*, 22(45-47).
- [11] Li Guangxiao (2024). "Changes and Constants in News Communication Amidst the AIGC Wave". *Audiovisual World*, (04),87-90.