

The Transformation of Journalism in the Era of Artificial Intelligence and Practitioners' Perspectives on Human-Machine Interaction

Jiapeng Chen

*School of Journalism and Communication, Sun Yat-sen University, Guangzhou, China
chenjp78@mail2.sysu.edu.cn*

Abstract: In recent years, generative artificial intelligence (AI) has been applied in various fields of journalism. As AI is involved in news generation, it inevitably affects the existing landscape of the industry. Technological characteristics of AI and the interaction process between practitioners and AI are important factors affecting the development of the industry in the context of AI-driven transformation. Therefore, this paper explores how generative AI impacts the operation of news organizations as well as how journalists perceive AI and its impact on news production through human-machine interactions. The results show that AI enhances the efficiency of news production and distribution significantly. Nevertheless, practitioners believe that AI-generated news has not yet reached professional standards and still requires human review and verification. Meanwhile, the use of AI in journalism has prompted a role shift among practitioners, moving the focus from production to verification. Practitioners need to use AI to enhance their professional capabilities, especially in terms of innovation and creativity that AI still lacks. The ideal relationship between journalists and AI is a collaborative one, in which humans take the initiative to leverage AI's efficiency advantages while upholding journalistic ethics and fostering innovation within the industry.

Keywords: Journalistic Transformation, Journalism Practitioners, Generative Artificial Intelligence, Actor-Network Theory, Human-Machine Interaction

1. Introduction

As artificial intelligence (AI) technology continues to develop, it has been integrated into various stages of news production due to its efficiency and automation, propelling journalism into an era of deep technological integration. The widespread application of AI technology in news production has not only transformed the methods of news creation but also reshaped the relationship between journalists and AI, thus driving a transformation in journalism. According to Actor-Network Theory, social and technological phenomena are complex networks constructed by the interactions between actors that are mutually equal, both human and non-human [1]. In the AI era, the transformation of journalism is constructed in the collaborative news production between practitioners and AI [2]. This paper aims to explore the current applications of Artificial Intelligence Generated Content (AIGC) in journalism and the AI-driven transformation of the industry, with a focus on the impact of AI on industry structure and practices following its integration into news production. It further examines journalists' perceptions and attitudes towards the transformation of journalism driven by AIGC. By

focusing on practitioner perspectives rather than widely discussed technological aspects, it offers fresh insights into the actual operations and attitudes, providing empirical evidence on the evolution of journalism in the AI era.

2. Application and impact of AIGC in news production

2.1. Basic principles and journalism applications of GAI

Based on algorithms such as Generative Adversarial Networks (GANs), AIGC is produced by generative AI through Natural Language Processing [3]. With model upgrades, AI can now generate both structured and unstructured content, conduct fact-checking, analyze public opinion, and transcribe audio, offering end-to-end technical support across the entire journalistic process. The widespread application of AI in the journalism is driven by two main factors. On one hand, global media are facing increasingly severe financial pressures and resource constraints, resulting in an urgent need for new technologies to improve production efficiency and reduce costs. On the other hand, the high performance of AIGC in information processing and content generation makes it an important tool for news media to cope with media crisis. Compared to manual reporting and editing, AI offers significant advantages in speed, coverage, and scalability. Media organizations incorporate AI technology into news production to reduce operational costs and enhance production efficiency [4]. Currently, AI is chiefly used for data collection, content creation, and personalized delivery [5]. Technically, AI can assist journalists with routine tasks, streamline workflows, and enhance the efficiency and flexibility of news production.

2.2. The pathway generative AI empowers news generation and distribution

Through automated content creation, process optimization, and personalized distribution, AI has significantly enhanced the efficiency of news generation and distribution, leading to substantial improvements in news production. Foremost, AI is accelerating the automated generation of news content, particularly in reports based on structured data such as finance, sports, and weather [6]. For example, The Los Angeles Times' Quakebot and Xinhua News Agency's AI reporter Kuai Bi Xiao Xin can rapidly generate basic reports, enhancing news production efficiency. Automated news generation frees journalists from repetitive tasks, speeds up news releases, and ensures timeliness and continuity. Thus, it has gradually become a key method of production in hard news.

Besides, AI has significantly enhanced the efficiency of every stage in news production. It can rapidly gather vast amounts of information, reducing the time journalists spend on searching and integrating data [7]. Previous research shows that AI's advantage in undertaking mechanized tasks allows journalists to be free from repetitive work and focus more on creative-oriented and strategic work [8]. For example, AI can efficiently complete interview transcription, reducing the workload of journalists, thereby optimizing the overall workflow and improving creativity and flexibility [9]. In creativity aspect, AI can predict future trends of public events and provide reporting angles by analyzing historical data and public opinion, exploring potential in-depth news topics and assisting the media's agenda-setting ability [10,11]. In terms of news distribution, AI enhances personalized recommendations by analyzing audience preferences and their willingness to pay. AI may optimize news distribution based on the user portrait of the audience, helping media better design paywalls and subscription models, and improving market competitiveness and revenue efficiency [12].

2.3. Impact of AIGC on news production quality from practitioners' perspective

According to Actor-Network Theory, the AI-driven transformation in journalism is shaped by both AI technology and journalists' interactions with it. Research shows that while AIGC improves news

production efficiency, particularly in information gathering, content creation, and personalized distribution, journalists remain wary of the quality and credibility of AI-generated content [13].

The core value of news lies in the reliability of information, which is also journalists' main concern about AI-generated news. Firstly, due to the existence of algorithm black box and potential biases, the content generation of AI lacks traceability, making it difficult to trace back to the original source [14]. The lack of traceability in information sources challenges journalists in verifying the authenticity of content. Moreover, there is ongoing debate about whether AI's ability to screen and assess information meets journalistic standards. And AI's corpus and semantic understanding limit the accuracy of generated news. AI creates content based on input instructions, but when dealing with dialects, metaphors, or content requiring specific socio-cultural knowledge, it tends to interpret instructions literally, which may result in deviations from the journalist's original intent [15]. Thus, if the accuracy of AI-generated content is not guaranteed, journalists have to conduct manual reviews and modifications, which may backfire in terms of AI's superiority in improving efficiency. Additionally, practitioners reckon that AI is inferior to human when it comes to creativity. The role of journalists goes beyond organizing published information to include uncovering undiscovered facts. AI-generated news relies on public digital information, which means unpublished manuscripts and innovative reports are excluded from the raw material of AI. This may limit AI's innovation in agenda setting. For example, when AI transcribes interview records, it may omit some potential news points, further weakening its role in inspiring creativity. While big data offers vast amounts of material, AIGC may result in news homogenization. True high-quality reporting requires in-depth analysis and insight into underlying issues, not just superficial content.

3. The transformation of journalists' roles and responsibilities in the AI era

3.1. Transformation of journalism practitioners' roles

As AI becomes increasingly widespread in journalism, the roles and responsibilities of journalists in news production have changed greatly. The introduction of AI has automated tasks like information acquisition, data analysis, and interview transcription. The focus of journalists' work has gradually transferred from production to verification. Rather than solely generating content, journalists are increasingly tasked with verifying, modifying, and enhancing AI-generated news. This change not only reflects the highly involvement of AI in news production but also reveals the limitations of AI in news quality. With the engagement of AI, journalists not only need to make judgement on the accuracy and feasibility of AI-generated content but also make professional supplements and modifications to guarantee that AI-generated news can meet the journalistic ethical standards and industry requirements. Since AI lacks social and cultural sensitivity to news events and the ability to understand complex contexts, journalists need to use their professional sensitivity to fill the gaps in emotions, backgrounds, and insights that AI cannot cover. Journalists remain essential gatekeepers, especially when handling multi-dimensional social issues.

Meanwhile, this change has caused an increasing in the proportion of creativity-oriented tasks in journalists' work. Though AI can take over data processing and other technical tasks, the workload of journalists still has not decreased. Rather, journalists' duty is more concentrated on the in-depth and innovation of news generation. The collection and organization of information are no longer the priority for journalists. Instead, they have become the dominant roles in promoting creativity and professionalism. By verifying and reprocessing AI-generated news, journalists can better focus on the values behind the news, details that have not been discovered, and potential social issues, enhancing the journalism ethics and professionalism. With AI assistance, journalists can focus more on in-depth analysis and production. Therefore, the insight into news and creativity have become the new core competitiveness of journalists. This shift has changed the way journalists work and highlighted the

importance of creativity in news production, which means that the improvement of news quality will gradually rely more on the unique creativity and profound insight of journalists, rather than solely on the upgrading of AI models.

3.2. Reconstruction of journalism practitioners' professional capabilities

The integration of AI technology has drastically reshaped the news production model in journalism. Specifically speaking, serving as a supportive tool in news production, AI has actually promoted the transformation and reshaping of practitioners' roles. And the main goal of AI is not to replace journalists, but to assist them by enhancing workflows and data analysis, which ultimately supports creativity and professional judgment [16]. AI shows great efficiency in automatic news generation and technical tasks, but in terms of insight, creative generation, and ethical judgment, it still cannot replace the dominant role of humans.

The core value of news lies not only in the dissemination of information but also in the in-depth processing of information and the interpretation of its social background. Although AI performs well in screening large amounts of data, extracting information and other technical tasks, it lacks news sensitivity and insight, which are exactly the indispensable core abilities for journalists in AI era. In the post-truth era, the authenticity of information has become the core of news quality, which often comes from the story behind the news, which needs the ability to dig out and present influential news topics through keen intuition and profound news insight. When dealing with complex social phenomena, politically sensitive topics, or historical events, the critical thinking and in-depth analysis abilities that are exclusive to journalists can provide perspectives that see through the surface of social events, which is temporarily impossible for AI to replicate no matter how fast AI technology develops. The transformation of practitioners' roles is about using AI to enhance efficiency and focus on creativity, not about being replaced by it.

In the AI era, journalism practitioners must master traditional reporting skills, use AI tools effectively, and verify AI-generated news. The core of this skill lies in setting clear tasks for AI, verifying the reliability of AIGC, and refining it professionally. Journalists must use AI tools to analyze data, screen information, verify sources, and identify errors to ensure content authenticity and reliability. In addition, effective collaboration in the human-AI interaction is also emphasized. Journalists may take advantage of AI's technical characteristics that may have already surpassed traditional means in certain fields, but the upper intelligence limits of AI still depends on how human make use of it. In other words, AI is not an independent creator, but a supportive tool for journalists, assisting in information processing and news writing. The core strength of journalists lies in their critical thinking, innovative use of AI, and deep sociocultural insight.

4. Future implications and challenges of the journalism in AI era

4.1. Industry innovation opportunities led by AIGC

While AI-generated news may lack creativity, it could indirectly foster the innovative development of journalism. New technologies like AI dubbing and anchors enable rapid news production from scripts, diversifying real-time content and boosting views across multiple channels. For instance, AI video software like Sora can generate videos around 20 s to provide better visual effects for news broadcasts. Beyond generating news content directly, AI can also stimulate creativity and inspire innovation among media professionals. Practitioners can efficiently find newsworthy topics and innovate reporting angles based on AI's analysis on public opinion. At the same time, practitioners can also obtain new inspiration from the results produced by AI when using AI to generate pictures and videos, thus promoting innovation in the form of news production. Moreover, the introduction of AI facilitates the implementation of many innovative ideas. For example, the Cantonese AI dubbing

robot developed by Guangdong Radio and Television launched a daily Cantonese morning report that blends local culture with current affairs. This AI-driven initiative has received positive feedback from mobile audiences, highlighting the innovative potential of human-AI collaboration. In the future, by expanding its training corpus and enhancing content self-review mechanisms to prevent ambiguity and misinformation, AI-generated news can move closer to professional journalistic standards, thereby addressing current shortcomings in accuracy.

4.2. Core challenges in the development of AIGC

The integration of AI into journalism has significantly transformed the production process, yet it has also introduced challenges in professionalism, creative output, journalistic ethics, and copyright, prompting new demands on journalists to adapt to these evolving technological shortcomings. First, practitioners need to enhance their adherence to journalistic ethics and professionalism. Out of news professionalism, news content requires high level of rigor, and the defects of AI-generated news in authenticity and accuracy require the review by practitioners to ensure that the final editions comply with journalistic ethics. Post-event review of AI-generated news content is undoubtedly necessary to avoid weakening the credibility of the media due to the use of AI, but the pre-judgment of whether to use AI for specific tasks is equally important. This requires practitioners to have a clear recognition of the advantages and disadvantages of AI when deciding whether to use AI for content generation or not. Practitioners must be in the dominant position and cannot excessively rely on AI tools. They are encouraged to regard AI as an supportive tool to enhance practitioners' professional capabilities. Secondly, the copyright issues and relevant liability caused by AI-generated content need to be emphasized as well. The way AI works may involve unauthorized content, especially when AI adopts information without the permission of the original author, which may infringe on the original author's copyright. In AI dubbing and image generation, it remains unresolved whether authorization is required when training samples are sourced from publicly available voice works or images. If AI-generated news content results in copyright infringement, responsibility remains unclear. Whether liability lies with AI developers, media organizations, or journalists is a pressing legal and ethical issue that demands industry-wide resolution.

4.3. Future pathways for industry adaptation

Though the introduction of AI in newsrooms are still resisted by some practitioners, it's undeniable that AI technology does have a great impact on the industry. In the era of AI-driven journalism, future practitioners must master AI technologies to enhance news production efficiency. They should turn AI, which may bring potential career crises, into an assistant to consolidate journalism professionalism. In the industry transformation, practitioners need to keep up with the upgrade of new technologies, while media organizations need to provide latest AI technology resources for practitioners to prevent the constraints on media production caused by the lack of AI software or skills [17,18]. At the same time, professional verification is also indispensable for avoiding the impact of AI's defects on media credibility. In addition, industry standards and legal provisions are also needed as a coercive force and the bottom-line guarantee for journalistic ethics. For example, with the increasing amount of AI-generated content in news, there should be media laws stipulating that content completely or partly generated by AI must be clearly marked when published. In terms of journalism education, current journalism education needs to strengthen students' professional media literacy and critical thinking to face the news credibility crisis brought by AI. Meanwhile, the content of practical courses should be updated, such as adding new courses such as AI skills teaching to correspond to the changing practical needs of industry brought about by AI [19].

5. Conclusion

Many practitioners currently view AI primarily as an efficient search engine and data analysis tool, one that can free them from repetitive, mechanical tasks. No matter optimistically viewing AI as an auxiliary tool that may improve news production efficiency or relatively conservatively believing that the use of AI in news production will weaken journalistic professionalism, journalists currently view AI technology as an empowering tool that can quickly refine information and generate news. Currently, AI-generated news still requires human review to ensure compliance with journalistic ethics, as AIGC lacks inherent creativity and authenticity. The introduction of AI has promoted the transformation of the roles of journalism practitioners as well. Moving forward, journalists must not only master AI tools to boost productivity but also elevate their professional expertise, particularly in verification and creative oversight, to compensate for AI's inherent limitations in originality and journalistic rigor. As AI continuously updates, it may bring more changes to the journalism industry. Therefore, journalism practitioners need to maintain journalism professionalism, social insight and innovative creativity, which are the human-exclusive core advantages that AI cannot replace.

References

- [1] Latour, B. (1996). *On actor-network theory: A few clarifications*. *Soziale Welt*, 47, 369-381.
- [2] Stalph, F. (2019). *Hybrids, materiality, and black boxes: Concepts of actor-network theory in data journalism research*. *Sociology Compass*, 13(11), e12738. <https://doi.org/10.1111/soc4.12738>
- [3] Jovanovic, M., & Campbell, M. (2022). *Generative artificial intelligence: Trends and prospects*. *Computer*, 55(10), 107-112. <https://doi.org/10.1109/MC.2022.3192720>
- [4] Opdahl, A.L., et al. (2023). *Trustworthy journalism through AI*. *Data & Knowledge Engineering*, 146, 102182.
- [5] Shi, Y., & Sun, L. (2024). *How generative AI is transforming journalism: Development, application and ethics*. *Journalism and Media*, 5(2), 582-594. <https://doi.org/10.3390/journalmedia5020039>
- [6] Diakopoulos, N. (2019). *Automating the news: How algorithms are rewriting the media*. Harvard University Press.
- [7] Stray, J. (2021). *Making artificial intelligence work for investigative journalism*. *Algorithms, Automation, and News*, 97-118. <https://doi.org/10.4324/9781003045693-7>
- [8] Noain Sánchez, A. (2022). *Addressing the Impact of Artificial Intelligence on Journalism: The perception of experts, journalists and academics*. <https://core.ac.uk/works/125063576/>
- [9] Oksymets, V. (2024). *The impact of artificial intelligence on journalism practices and content creation*. Vytautas Magnus University.
- [10] Patrick, J. (2023). *How does the conversation between a journalist and Bard, the AI chatbot at Google occur?* <https://www.heartofhollywoodmagazine.com/post/how-does-the-conversation-between-a-journalist-and-bard-the-ai-chatbot-at-google-occur>
- [11] Coddington, M. (2015). *Clarifying journalism's quantitative turn: A typology for evaluating data journalism, computational journalism, and computer-assisted reporting*. *Digital Journalism*, 3(3):331-348.
- [12] Simon, F. (2024). *Artificial intelligence in the news: How AI retools, rationalizes, and reshapes journalism and the public arena*.
- [13] Wölker, A., & Powell, T.E. (2021). *Algorithms in the newsroom? News readers' perceived credibility and selection of automated journalism*. *Journalism*, 22(1), 86-103. <https://doi.org/10.1177/1464884918757072>
- [14] Ali, W., & Hassoun, M. (2019). *Artificial intelligence and automated journalism: Contemporary challenges and new opportunities*. *International Journal of Media, Journalism and Mass Communications*, 5(1), 40-49.
- [15] Caliskan, A., Bryson, J.J., & Narayanan, A. (2017). *Semantics derived automatically from language corpora contain human-like biases*. *Science*, 356(6334), 183-186. <https://doi.org/10.1126/science.aal4230>
- [16] Tejedor, S., & Vila, P. (2021). *Exo journalism: A conceptual approach to a hybrid formula between journalism and artificial intelligence*. *Journalism and Media*, 2(4), 830-840. <https://doi.org/10.3390/journalmedia2040048>
- [17] Varian, H.R. (2018). *Artificial intelligence, economics, and industrial organization (Working Paper No. 24839)*. National Bureau of Economic Research.
- [18] Moravec, V., et al. (2024). *Human or machine? The perception of artificial intelligence in journalism, its socio-economic conditions, and technological developments toward the digital future*. *Technological Forecasting and Social Change*, 200, 123162. <https://doi.org/10.1016/j.techfore.2023.123162>
- [19] Kothari, A., & Hickerson, A. (2020). *Challenges for journalism education in the era of automation*. *Media Practice and Education*, 21(3), 212-228. <https://doi.org/10.1080/25741136.2020.1831913>