

Original Research Article

Research on news content production mechanisms driven by intelligent algorithms

Wenhui Tang

Communication University of China, Nanjing, Nanjing, Jiangsu, 210000, China

Abstract: Intelligence algorithms centered on artificial intelligence are profoundly reshaping the content production ecosystem of news communication. Based on the cutting-edge practices presented at the 2025 China New Media Conference, this paper systematically analyzes the changes in news content production mechanisms driven by intelligent algorithms. The study suggests that building a new production mechanism guided by mainstream values, based on human-machine collaboration, and expanded through comprehensive services is the key path for mainstream media to 'move toward the new' in the wave of intelligence.

Keywords: intelligent algorithms; news production mechanisms; artificial intelligence

1. Introduction

In the current situation where the wave of intelligence is sweeping across the globe, intelligent algorithms centered on artificial intelligence have become a key force driving changes in various fields of society. The field of news and communication is at the forefront of information production and the convergence of ideas, and its content production mechanisms are undergoing unprecedented systemic reshaping. Intelligent algorithms are no longer merely tools for efficiency; they are deeply integrated into the entire process—From clue discovery, material collection, and content creation to product distribution and performance evaluation—Becoming a core variable in reconstructing the news industry ecosystem. Conducting in-depth research on the content production mechanisms driven by intelligent algorithms in news and communication has significant theoretical and practical implications.

2. The technical foundations and practical manifestations of intelligent algorithms driving changes in news production mechanisms

Eakthroughs of third-generation artificial intelligence technologies, represented by generative AI, big data, and cloud computing. Judging from the scene presented at the 2025 China New Media Technology Exhibition, such transformation has already moved from localized applications to a stage of systematic reconstruction: the role of algorithms has fundamentally shifted. Reports indicate that AI is transitioning from being a "supporting tool" in the media industry to a "decision-making lead" with autonomous planning and operational capabilities. For example, Xinhua News Agency's "Editorial Assistant" integrates 227 functions, and Hunan Broadcasting's "Mango Large Model" achieves over 93% coverage of the entire business process, which means algorithms are now deeply involved in decision-making across all stages of news production, including planning, gathering, editing, publishing, and review. The production process has achieved full-chain intelligent reconstruction: with the help of media-specific large models and AIGC tools, content production is shifting from a traditional linear model to a highly automated, intelligent networked collaboration; from trending topic discovery and automatic material collection and organization to intelligent generation and adaptation of multimodal content, algorithms serve as the "central nervous system" of a new type of production line.

3. Core dimensions of news content production mechanisms driven by intelligent algorithms

3.1. Reconstruction of production factors: Data and algorithms become core assets

In an algorithm-driven production mechanism, high-quality, structured, and mainstream value-oriented corpora and data have replaced the traditional editorial manpower as the most crucial production factor. People's

Daily Online has built a "mainstream value corpus" exceeding 300TB, and Sichuan Daily has developed provincial and Tibetan language corpora. Their intention is to transform the media's professional accumulation and data resources into "fuel" for training reliable and controllable industry large models. These corpora are not just sources for content generation; they serve as "calibrators" to ensure that algorithmic outputs align with the correct value orientation, professional standards, and regional cultural characteristics. The digitalization and capitalization of production factors have shifted the foundation of media competition from acquiring exclusive news leads to the accumulation, governance, and exploitation of high-quality data resources in specialized fields.

3.2. The evolution of production relations: Human-machine collaboration becomes the new normal

The large-scale application of algorithms has not eliminated human subjectivity; instead, it has spawned a new type of production relationship in which "biological humans, digital humans, and robots" collaborate. For example, Xinhua News Agency launched the "AI Political Reporter" system in 2025, capable of automatically generating multilingual drafts of major political news, with editors only needing to verify facts, refine context, and ensure values, significantly enhancing the timeliness and scope of international reporting. As demonstrated by the program "Future Headlines": robots handle data mining and work in hazardous environments using computational and physical capabilities; digital human anchors deliver standardized, multilingual reports; human journalists focus on key tasks that require deep insight, emotional resonance, value judgment, and on-site verification. The "courage on-site" and "sincere empathy" mentioned by students at Hunan University represent the indispensable value of humans in the algorithm era. This relationship is not a simple replacement but a deeply integrated complementary advantage: algorithms handle massive information and repetitive tasks, freeing human creativity; humans set goals for algorithms, inject values, verify facts, and endow works with warmth and soul.

3.3. Expansion of value realization: From information dissemination to comprehensive services

Intelligent algorithms have enabled mainstream media to break through the single function of information dissemination, expanding into broader areas of social services and cultural heritage, creating entirely new social value and business models. Examples include the "AI Rumor-Busting Bureau" of Southern News Network and the "Zha Zhen" health platform of Changjiang Daily. These demonstrate how media, with the help of algorithms, are transforming to participate in social governance and provide public services. Meanwhile, Sichuan Daily's digital cave project is a typical case of using algorithms for cultural heritage protection and innovative dissemination. Algorithm-driven production mechanisms generate not only news products but also solutions, interactive experiences, and digital services.

4. Adjustment paths for news production mechanisms driven by Intelligent algorithms

4.1. Building a data-driven value calibration system

In the context of intelligent algorithms being deeply integrated into news production, building a data calibration system guided by mainstream values has become a key adjustment approach. The construction of this system should focus on three aspects: it is necessary to create high-quality domain-specific corpora, such as the "Mainstream Value Corpus" of People's Daily Online and the provincial situation corpus of Sichuan Daily, to provide foundational data for algorithm training that aligns with professional standards and value orientation. These corpora should reflect mainstream values, encompass rich professional knowledge and local characteristics, and ensure the value accuracy and cultural appropriateness of algorithm-generated content; it is also essential to establish a real-time monitoring and adjustment mechanism for algorithmic values, using human-machine collaboration to continuously evaluate algorithm outputs and promptly identify and correct any potential value deviations.

4.2. Improve the professional division of labor in human-machine collaboration

Building a scientifically sound and reasonable human-machine collaboration mechanism is a key adjustment path for adapting to news production in the intelligent era. This division of labor mechanism needs to be based on a full understanding of the respective strengths of humans and algorithms: algorithms excel at processing massive amounts of data, identifying patterns, and performing standardized tasks; human journalists, on the other hand, possess unique advantages such as value judgment, emotional resonance, creative thinking, and on-site investigation. In practical operation, the "biological-human-digital-human-robot" collaboration model demonstrated in the program "Future Headlines" can be used as a reference to establish a tiered task allocation

system—assigning technical tasks like data collection, preliminary analysis, and format editing to algorithms, while leaving tasks that require professional judgment and human care, such as in-depth interviews, investigative reporting, and commentary writing, to human journalists.

4.3. Expanding public service functions enabled by algorithms

Intelligent algorithms have provided new possibilities for the media, allowing it to go beyond traditional information dissemination functions and expand into the field of public services. This adjustment requires leveraging technological innovation to drive functional transformation, enabling mainstream media to play a greater social role in the era of intelligence. Specific approaches include: developing public service products based on intelligent algorithms, such as Nanfang News Network's 'AI Rumor Buster' and Changjiang Daily's 'Zha Zhen' health platform, using technological means to improve the efficiency of public services. These products can enhance the media's social influence, as well as open up new service scenarios and value spaces. Promoting innovative applications of algorithm technology in the field of cultural heritage, drawing on the experience of the Sichuan Daily Digital Grottoes Project, applying intelligent technology to protect and disseminate excellent traditional culture, achieving deep integration of technology and culture.

5. Conclusion

Intelligent algorithms are reshaping the fundamental logic and operational mechanisms of news production, driving mainstream media toward a deep transformation in the direction of intelligence and systematization. The extensive practices showcased at the 2025 China New Media Conference demonstrate that this revolution has gone beyond the simple application of technological tools and has entered a stage of reconstructing production relations and innovating development models. The future news production mechanism should be a unified system of data intelligence and humanistic values, an organic system of human-machine collaboration, and a platform integrating technological innovation with content innovation.

References

- [1] Gao Fang. Exploration of the Mechanism of Artificial Intelligence's Role in Journalism Work [J]. Journalism Research Guide, 2025, 16(13): 5-8.
- [2] Yang Qi. Ethical Dilemmas and Optimization Strategies of AI Technology Empowering Journalism [J]. Journalism Research Guide, 2025, 16(13): 1-4.
- [3] Wei Jia. Content Generation and Communication Strategies Driven by Artificial Intelligence [J]. China Press, 2025, (12): 146-147.