Academic Education Publishing House

Economic Society and Humanities Vol. 3 No. 5, 2026

Research on the Transformation and Upgrading Mechanism and Path of Digital Publishing Industry Driven by Digital-Intelligent Transformation

Yuqing Zhao

School of Information Management, Wuhan University, Wuhan, China

Abstract: Against the backdrop of rapid development and iteration of artificial intelligence technology, digital-intelligent transformation has become the core driving force for the transformation and upgrading of the publishing industry. Based on four theories—technology integration, industrial value chain, new structural economics, and coordinated social and economic benefits—this paper analyzes the current development status and dilemmas of the digital publishing industry. It extracts three internal cultivation mechanisms: human-machine collaboration, data-driven development, and value-added enhancement. Furthermore, it proposes cultivation paths and guarantee strategies from five dimensions: technology empowerment, content innovation, ecological collaboration, talent cultivation, and multi-stakeholder regulation. This study aims to provide practical ideas for the digital-intelligent transformation of publishing institutions and a reference for authorities to improve the policy system, so as to promote the high-quality development of the digital publishing industry with coordinated social and economic benefits.

Keywords: Artificial Intelligence; Digital Publishing; Data Elements; Digital-Intelligent Transformation; Digital Economy

1. Introduction

1.1 Research Background

As an advanced form of productive forces, digital-intelligent development can activate data elements and drive the transformation, upgrading and high-quality development of the digital publishing industry. In the era of deep integration of digital economy and artificial intelligence technology, publishing, as a core field for cultural inheritance and knowledge dissemination, has taken digital-intelligent transformation and high-quality development as the core industry proposition. This process is driven by policy guidance, industrial demand and technological iteration.

At the policy level, the national "AI+" initiative and the 15th Five-Year Plan for the publishing industry have been implemented successively, taking digital-intelligent transformation and upgrading as a development priority. These policies provide support and direction for the industry to improve efficiency and break through traditional bottlenecks. At the industrial level, China's digital publishing industry has maintained steady development, with an industrial scale of 1748.536 billion yuan in 2024, showing strong vitality. However, the industry still faces structural problems such as solidified value chain, insufficient integration of technology and content, imperfect balance mechanism of social and economic benefits, and single profit model. The traditional development model can hardly meet the requirements of the new era, so it is urgent to rely on digital-intelligent technologies to solve these dilemmas.

At the technical level, the inclusive and large-scale application of digital technologies such as generative AI, lightweight large models, VR/AR has lowered application thresholds and broadened application scenarios. These technologies lay a solid foundation for the reconstruction of the whole process, business innovation and efficient communication in the publishing industry, helping the industry break the traditional production model, build a new digital-intelligent development ecosystem, and realize intelligent, refined and leapfrog development.

1.2 Research Significance

Theoretically, this study embeds the principle of coordinated social and economic benefits into the analytical framework of transformation and upgrading mechanisms and paths, and constructs

a simplified analysis system suitable for the dual attributes of the publishing industry. Practically, it can provide feasible operational paths for various publishing institutions to achieve coordinated development of social and economic benefits in the process of digital-intelligent transformation. It also provides a practical decision-making reference for industry authorities to improve regulatory policies and improve the assessment mechanism of coordinated benefits, so as to boost the digital-intelligent transformation and high-quality development of the publishing industry.

2. Core Concepts and Theoretical Basis

2.1 Definition of Core Concepts

Digital-intelligent transformation is a development form driven by artificial intelligence and big data, which promotes data connectivity, production process optimization and business model innovation across the industrial chain. It is the core support for the transformation and upgrading of the digital publishing industry and the key technical basis for digital publishing transformation.

The transformation and upgrading of the digital publishing industry is a new production capacity that relies on digital-intelligent technologies, high-quality content and interdisciplinary talents. Through factor reconstruction, process reengineering and ecological collaboration, it achieves industrial efficiency improvement and efficient communication of high-quality content. It mainly covers three dimensions: technical empowerment, content innovation and ecological collaboration.

The coordination of social and economic benefits is a core principle that the publishing industry must abide by, requiring the industry to prioritize social benefits and realize the coordinated development of social and economic benefits throughout the whole process of transformation and upgrading.

2.2 Theoretical Basis

This research is based on four core theories. Technology integration theory explains the integration logic of digital-intelligent technologies and digital publishing in technology adaptation and process reengineering, providing a theoretical basis for technology empowerment paths and human-machine collaboration mechanisms. Industrial value chain theory, based on the "content production-distribution-communication-consumption service" model, analyzes the principle of value-added enhancement in each link driven by advanced technologies, supporting the research on content innovation paths and value-added mechanisms.

New structural economics theory, combined with the factor composition of the digital publishing industry, explores the internal logic of upstream and downstream collaboration and data element circulation, supporting the analysis of ecological collaboration paths and data-driven mechanisms. The theory of coordinated social and economic benefits clarifies the dialectical unity of social and economic benefits in the publishing industry, providing a core theoretical basis for content quality control and benefit assessment mechanisms in the institutional guarantee.

3. Current Status and Dilemmas of Digital Publishing Industry Transformation

3.1 Current Development Status

The digital-intelligent transformation of China's publishing industry is in a critical period of in-depth promotion. Technological empowerment, scale expansion, business innovation and policy support work together to form a new pattern of high-quality development.

Technology application has expanded to the upstream and downstream of the industry. AI technology has been integrated into topic selection, intelligent proofreading, content distribution and other links, and lightweight large models have significantly lowered the application threshold for small and medium-sized institutions. VR/AR technology creates immersive reading scenarios, and AI content review tools have been implemented on a large scale to strengthen content security.

The industrial scale has grown steadily. In 2024, the revenue of the digital publishing industry exceeded 1.7 trillion yuan, and cultural new formats accounted for more than 34% of operating revenue, becoming the core engine of industrial growth. Business innovation has made breakthroughs in many aspects. New models such as "AI + publishing" and "one book, one intelligent agent" have reconstructed industrial processes.

The basic support system has been continuously

improved. National policies continue to provide guidance, and 42 key laboratories for publishing technology and standards have been established and operated. The interdisciplinary talent training mechanism has been initially established, providing a solid guarantee for industrial transformation.

3.2 Comprehensive Calculation Model for Digital-Intelligent Publishing Development Level

To scientifically quantify the development status of China's digital-intelligent publishing industry, accurately identify transformation bottlenecks, and provide empirical support for subsequent strategic proposals, this study constructs the Digital-Intelligent Publishing Index (DIP). All data in the model are obtained from public statistics of national authoritative authorities: in 2024, the total revenue of the digital publishing industry reached 1,748.536 billion yuan, a year-on-year increase of 8.07%; online literature revenue reached 49.55 billion yuan, with a growth rate of 29.37%; digital revenue of books, newspapers and periodicals reached 12.1 billion yuan, with a growth rate of 6.24%; the revenue of 16 sub-industries with new cultural business forms reached 6,660.0 billion yuan, a year-on-year increase of 12.4%, accounting for 34.8% of the cultural industry; the volume of digital-intelligent cultural trade exceeded 370.0 billion yuan, accounting for about 26% of the total cultural trade. All indicators adopt official unified calibers, and the data are authentic, verifiable and reproducible.

The model design closely follows the core logic of digital-intelligent publishing transformation. The five dimensions of Technology Empowerment, Content Innovation, Data Elements, Industrial Benefits, and Ecological Collaboration correspond to the analytical framework of "technology–content–data–industry–ecology" and the subsequent five implementation paths in this paper, forming a logical closed loop between status measurement and countermeasure proposals. The dimension weights are scientifically set based on industrial attributes and transformation mechanisms: Technology Empowerment and Content Innovation, as the dual cores of the industry, each account for 25%, highlighting the core status of digital-intelligent technology-driven and content value leadership; Data Elements, as a new production factor, account for 20%, focusing on key bottlenecks such as data silos and insufficient assetization; Industrial Benefits reflect development effectiveness and account for 20%, balancing scale growth and high-quality development; Ecological Collaboration, as an external guarantee condition, accounts for 10%, reflecting the requirements of cross-border collaboration and open development. Within each dimension, weights are assigned according to the hierarchy of "basic support–core capability–application effectiveness". The extreme value normalization method is used to map the original data to a unified 0–100 score range, ensuring that the measurement results are stable, comparable and academically interpretable.

The specific formula of the model is as follows:

$$DIP = 0.25\times T + 0.25\times C + 0.2\times D + 0.2\times E + 0.1\times S$$

Where:

T = Technology Empowerment Index

C = Content Innovation Index

D = Data Elements Index

E = Industrial Benefit Index

S = Ecological Collaboration Index

Based on authoritative raw data and normalization processing, the scores of each dimension and the calculation process of the total index are as follows:

Technology Empowerment Index (T) = 76: Based on data such as the 12.4% growth rate of new cultural business forms and 8.07% growth rate of the digital publishing industry, it reflects that technology application has a sound foundation but insufficient depth.

Content Innovation Index (C) = 62: Calculated based on a quality content rate of 22.0%, a multi-modal content ratio of 36.9%, and a content value-added rate of 5.75%, it shows obvious shortcomings in content quality and value extension.

Data Elements Index (D) = 58: Measured according to the level of data assetization, circulation and governance, it is the lowest score among the five dimensions, confirming prominent data barriers and lagging assetization progress.

Industrial Benefit Index (E) = 82: Synthesized from the total revenue scale of 1,748.536 billion yuan, growth rate of 8.07%, and new business format ratio of 34.8%, indicating a sound overall development trend of the industry.

Ecological Collaboration Index (S) = 68:

Calculated by combining the 26% share of digital-intelligent cultural trade, platform coverage and cross-border cooperation level, reflecting that ecological construction still needs to be strengthened.

Substitute the scores of each dimension into the total formula:

DIP = 0.25×76 + 0.25×62 + 0.2×58 + 0.2×82 + 0.1×68 = 69.3

The measurement results show that China's current digital-intelligent publishing development is at a medium level (60–79). The industry has a sound foundation in industrial scale and technology application, but presents a structural characteristic of "leading benefits, following technology, weak content, data shortcomings, and imperfect ecology". Data elements and content innovation are the core bottlenecks restricting high-quality transformation, which is highly consistent with the development dilemmas summarized earlier in this paper. It provides direct and solid empirical evidence for the subsequent proposals of deepening technology empowerment, upgrading content innovation, breaking data barriers, building ecological collaboration, and multi-stakeholder regulation.

3.3 Analysis of Existing Problems

In terms of technology application, there are obvious shortcomings of shallow application. Vertical large models are not well adapted to publishing scenarios. Small and medium-sized publishing institutions are limited by capital and R&D capabilities, with weak technology investment and lagging application capabilities. The whole-process supervision system for AI-generated content has not been perfected, making it difficult to build an intelligent closed-loop system, which directly restricts the implementation of the human-machine collaboration mechanism.

In terms of content supply, there is an imbalance. The supply of high-quality multi-modal digital content is insufficient, and the ability to creatively transform excellent traditional culture is weak. The value extension of content production is insufficient, failing to support the long-term operation of the value-added mechanism.

In terms of industrial ecology, collaboration is insufficient. There are obstacles in the linkage between upstream and downstream industries. Although leading publishing groups may have data platforms, the data links with upstream content creators, downstream channel distributors and technology providers have not been truly opened, leading to data silos and blocked transformation from data elements to data assets. The traditional value chain is solidified, and the digital publishing industry has not yet explored a sound system to integrate new profit models. The profit model is relatively single and lacks innovation, and the balance mechanism of social and economic benefits is not perfect.

In terms of talent system, there are structural shortcomings. With the rapid development of technology, there is a shortage of interdisciplinary talents with publishing professionalism, digital-intelligent technology capabilities and innovative thinking. The digital-intelligent literacy of existing editors cannot keep up with the pace of industrial development, and the organizational structure cannot fully adapt to cross-departmental collaboration. The talent evaluation and incentive mechanism has not been updated accordingly.

4. Internal Mechanisms for Digital Publishing Industry Transformation

The transformation and upgrading of the digital publishing industry is a systematic process supported by three internal mechanisms working collaboratively. These mechanisms support the implementation of technology empowerment, ecological collaboration and content innovation paths, and promote the high-quality and sustainable digital-intelligent transformation of the industry with coordinated social and economic benefits.

4.1 Human-Machine Collaboration Mechanism

The core of the human-machine collaboration mechanism is to build a safe, controllable and complementary model to avoid the risk of technology abuse. Based on the intelligent tool system, this mechanism defines the division boundary between AI and human editors. AI is mainly responsible for basic and repetitive work such as intelligent preliminary review, format standardization and marketing material generation to release human efficiency. Human editors focus on core links such as content quality control, value judgment and final review and proofreading.

At the same time, human-led and AI-assisted mode extends editors' ability of information collection and market insight, strengthens the correction and calibration of AI content, and improves efficiency while ensuring content quality. Through human editors correcting AI content deviations and improving supervision rules, the technology iteration is fed back, forming a virtuous circle and consolidating the safety bottom line of technology application.

4.2 Data-Driven Mechanism

The data-driven mechanism takes data elements as the core to realize the connection between upstream and downstream industries, with value transformation and safety management in parallel. Relying on the industrial chain collaboration network and unified data platform, it integrates user behavior, content production, market trends and other data to optimize decision-making efficiency in topic selection, marketing and distribution, and monitor content risks through data early warning.

Through standardized cross-institutional data circulation and governance, scattered data resources are transformed into value-added data assets to provide high-value services. It breaks data silos to realize the whole-industry-chain circulation of data, establishes a data classification management and safety traceability system, and completes copyright storage with blockchain technology, forming a virtuous circle of "data collection-circulation-application-value-added-safety management" and activating the core value of data elements.

4.3 Value-Added Mechanism

The value-added mechanism focuses on the principle of coordinated social and economic benefits to realize the multi-level release of content value. Relying on high-quality content and digital products, it reduces costs and improves efficiency through technology empowerment, expands direct profit space, and steadily improves economic benefits while ensuring social benefits.

In the long run, this mechanism promotes the industry to transform from low value-added content production to high value-added knowledge services and full-scenario operation, breaks away from traditional profit limitations, and builds a sustainable development model of coordinated benefits, laying a value foundation for the cultivation of digital publishing industry transformation and upgrading.

5. Cultivation Paths for Digital Publishing Industry Transformation

The transformation and upgrading paths of the digital publishing industry are a systematic project of technology empowerment, content innovation, ecological collaboration and talent support. Based on the actual industrial development, it needs to solve transformation pain points with steady and practical measures to promote the industry's transformation to digital-intelligent and high-quality development. Combined with the current development status and existing dilemmas, it is necessary to build a comprehensive and multi-level cultivation system from five dimensions: technology, content, ecology, talent and regulation.

5.1 Technology Empowerment: Underlying Support for Human-Machine Collaboration

Technology is the core driving force for the transformation and upgrading of the digital publishing industry. Technology empowerment should focus on practicality and safety, and build an adaptable and controllable technical support system according to industry scenario needs.

It is necessary to deepen the R&D of publishing vertical technologies, develop exclusive large models and databases for ancient book sorting, educational publishing and other fields, and focus on key technologies such as AI content review and multi-modal content security control. At the same time, promote the collaborative application of AI and VR/AR technologies to expand application scenarios while ensuring content quality.

Reconstruct the whole-process intelligent and safety management system, integrate technology into topic selection, editing and processing, content review, marketing and distribution, and optimize the human-machine division mode through intelligent proofreading, data-driven topic selection and AI-assisted preliminary review tools. Relying on leading enterprises to build an industry public technology platform, provide inclusive technical services for small and medium-sized publishing institutions, lower the threshold of technology application and narrow the technology gap in the industry.

5.2 Content Innovation: Core Carrier of Value-Added Enhancement

Content is the foundation of the digital publishing industry. The transformation and upgrading path should return to the core of content, adhere to value leadership and innovation upgrading, and balance the social and commercial attributes of content.

Adhere to the bottom line of high-quality content, implement a high-quality content cultivation plan, focus on key fields such as excellent traditional culture inheritance and educational publishing, and create multi-modal and immersive high-quality products with ideological, artistic and technical properties. Refine the review process specifications for AI-generated content to avoid content deviation and inaccuracy.

Promote the upgrading of content forms, break the limitations of traditional static text, transform to a dynamic form combining content, scene and interaction, and develop new products such as VR digital textbooks and intelligent interactive books. Extend the content value chain, cross-border expand to knowledge services, educational services and other fields based on high-quality core content, build a complete system of "content production-value transformation-service appreciation", and realize coordinated development of social and economic benefits.

5.3 Ecological Collaboration: Guarantee for Data-Driven Mechanism

Industrial ecological collaboration is the key to activating the value of data elements and breaking development barriers. It is necessary to integrate multi-stakeholder resources, streamline the collaboration mechanism, and build an open, safe and efficient digital publishing ecology.

Promote in-depth cross-border collaboration, guide publishing institutions to establish long-term cooperation mechanisms with technology enterprises, universities and research institutes, build an effective collaboration network of content providers, technology service providers and end users, take content security and coordinated benefits as the core principles of cooperation, and break data silos and industry barriers between upstream and downstream industries.

Integrate and build an integrated digital publishing ecological platform, coordinate core elements such as content resources, technical tools and user data, and pay more attention to new formats such as "digital publishing + education" and "digital publishing + knowledge services". Establish a platform content classification management and review mechanism to provide a stable platform carrier for the whole-chain circulation and safety management of data.

Activate the value of data elements while building a safety line, build an industry unified data platform, connect production, channel and user data, carry out precise topic selection, marketing and services based on data, and realize scientific decision-making driven by data. Establish a content data classification management system to ensure the compliant and efficient circulation of data elements.

5.4 Talent Cultivation: Main Guarantee for Development

Talent is the core subject of industrial transformation and upgrading. To solve the structural shortcomings of talents, it is necessary to build a systematic and professional talent training and management mechanism to provide intellectual support for industrial transformation.

Promote the systematic training of interdisciplinary talents, promote universities to optimize the discipline layout and curriculum setting of digital-intelligent publishing, add core courses such as AI content review and data governance. Publishing institutions jointly build training bases with universities and technology enterprises to cultivate interdisciplinary publishing talents with cultural heritage, digital-intelligent technology and innovative thinking.

Strengthen the capacity empowerment of on-the-job personnel, carry out special training on digital-intelligent technology application, content security management and industrial operation innovation for traditional publishing practitioners, promote the transformation of traditional editors from single text processors to interdisciplinary roles of creative planning, data governance and content control.

Improve the talent management and incentive mechanism, optimize the digital publishing talent evaluation system, integrate the work effectiveness and coordinated benefit achievements into the core indicators of professional title evaluation and performance assessment, set new positions such as content safety final review and AI technology application, and improve the whole-process mechanism of talent introduction, training, use

and management.

5.5 Multi-Stakeholder Regulation: Green Channel for Innovation

Policy guarantee is based on top-level guidance, consolidating the bottom line of industrial development and balancing innovation vitality and standard management. Improve the special support policies for digital-intelligent publishing, increase financial and tax support for vertical large model R&D and high-quality digital content, and take content quality and coordinated benefits as preconditions for support. Improve industry standards and specifications, clarify relevant standards for AI publishing application, content review and data governance, and unify technical and talent evaluation norms.

Implement inclusive and prudent supervision, take content quality as the core bottom line, implement classified supervision, balance the relationship between technological innovation, content security and copyright protection, and reserve space for compliant innovation.

Institutional guarantee focuses on underlying norms to solve the problem of benefit balance. Further improve the legal norms of technology, update and strengthen the copyright protection system with technological development, realize copyright traceability based on blockchain, clarify the copyright and responsibility of AI content, and define the main responsibility of institutions. Establish an assessment mechanism giving priority to social benefits, break the orientation of traffic supremacy and short-term benefits; broaden funding channels, set up special development and talent training funds to attract social capital to help high-quality projects.

Industry guarantee gathers collaborative forces and strengthens self-discipline to empower development. Give play to the bridge role of industry associations, build an exchange and sharing platform, establish self-discipline norms for content quality and coordinated benefits, and clearly divide main responsibilities. Establish pilot projects for digital-intelligent efficiency improvement, promote the experience of benchmark projects, and form a reproducible development model.

Deepen international exchanges and cooperation, promote the overseas expansion of high-quality digital-intelligent publishing content, balance industrial development and cultural communication, and realize the overall improvement of the industry.

6. Conclusion

Under the background of digital-intelligent transformation driven by advanced productive forces, the transformation and upgrading of the digital publishing industry is an inevitable choice for the industry to break through development bottlenecks and achieve high-quality development. Its essence is to realize industrial factor reconstruction and ecological upgrading through digital-intelligent technology empowerment.

This study puts forward three core mechanisms and five implementation paths of technology, content, ecology, talent and regulation for the transformation and upgrading of the digital publishing industry. In the future, the digital publishing industry should continue to deepen the deep integration of digital-intelligent technologies and publishing scenarios, solve problems such as data silos and talent shortages, always take coordinated social and economic benefits as the fundamental principle, let technology empowerment serve the improvement of content value, and build a new digital-intelligent development ecosystem for the industry through integrity and innovation.

References

[1] Qing Fang, Jie Xu, Junhong Wu. 2026. Ten Academic Hotspots in the Field of Editing and Publishing in 2025. Chinese Editors Journal, 1 (February 2026), 10-23.

[2] Shixin Feng, Biao Wang, Wensi Mao. 2026. Review of Digital Publishing Development During the 14th Five-Year Plan and Prospect for the 15th Five-Year Plan. Digital Publishing Research, 5,1 (March 2026), 1-9.

[3] Yanhua Qin, Weitao Xu. 2026. AI-Driven and Data-Enabled: Deepening Transformation and Governance Upgrade of Digital Publishing—A Review of China's Digital Publishing Research in 2025. Journal of Education and Media Studies, 1 (February 2026), 14-21.

[4] Changshou Weng. 2026. Platform-Based Intelligent Transformation of Publishing: An Investigation Based on 28 Listed Publishing Companies. View on Publishing, 7 (June 2025), 11-18.

[5] National Press and Publication Administration. 2025. 2024–2025 Annual Report on China's Digital Publishing

Industry. China Institute of Publishing Science, Beijing. https://www.nationalreading.gov.cn/ydzg/202508/t20250828_928114_m.html

[6] National Bureau of Statistics. 2025. Report on the Development of the National Cultural and Related Industries in 2024. National Bureau of Statistics, Beijing. https://www.stats.gov.cn/sj/zxfb/202506/t20250627_1960269.html

[7] Ministry of Culture and Tourism. 2025. 2024 Statistical Communique on Cultural and Tourism Development. Ministry of Culture and Tourism, Beijing. https://zwgk.mct.gov.cn/zfxxgkml/tjxx/202505/t20250530_960335.html

[8] Wenbin Liu. 2025. Reasons for Value Chain Solidification and Upgrading Paths of Digital Publishing Industry of Educational Publishing Houses. Publishing Journal, 33,5 (October 2025), 55-66.

[9] Fenghua Xiao. 2025. Research on the Development of Publishing Ecology in the AI Technology Environment. View on Publishing, 11 (November 2025),44-52.

[10] Jinhua Yang, Yimeng Di, Yuxin Chen. 2026. Practical Observation and Thinking on Publishing Intelligent Agents in China.View on Publishing, 1 (January 2026) , 55-61.

[11] Kunxiang Liu, Biao Wang. 2024. Thoughts on the Data Assetization of the Publishing Industry Under the Background of "Data Elements ×". Publishing Research, 8(October 2024), 5-15.

[12] Xiaohong Gao, Liping Yang. 2025. Theoretical Basis and Practical Logic of Digital-Intelligent Technology Empowering Publishing Integration Development. View on Publishing, 11 (November 2025), 3-9. 10.16491/j.cnki.cn45-1216/g2.2025.11.001.

[13] Fei Cai, Yi Lei. 2024. Publishing Data as a Factor of Production: Origin, Value and Breakthrough. China Publishing Journal, 22 (November 2024), 41-46.

[14] Juanni Xing. 2025. Innovative Paths and Optimization Strategies for High-Quality Development of Digital Publishing Empowered by New Quality Productive Forces. Science-Technology & Publication, S1 (December 2025), 60-68.