Exploration and Practice of the Transformation and Development of Scientific Journals in the All-Media Era: Postprint

Authors: Li Yuwei Li Wei

Date: 2025-07-09T00:00:00+00:00

Abstract

【Objective】 As media convergence continues to deepen, traditional journals are facing unprecedented challenges. This paper, based on practical work experience, conducts a preliminary exploration of the transformation and development of scientific journals in the all-media era. 【Method】 It analyzes the various challenges brought to scientific journals by the rapid development of new-generation information technologies, and examines the development strategies for scientific journals utilizing multiple new media platforms in the all-media context. 【Result】 The transformation of scientific journals in the all-media context must be content-driven, establish journal brands, and comprehensively build a new media communication matrix through diversified new media communication strategies. 【Conclusion】 The all-media era provides diverse channels and platforms for the dissemination of scientific journals. Scientific journals should actively collaborate with self-media and new media, leverage new communication forms such as short videos and live streaming, promote the integrated development of media, and create a brand-new communication model for scientific journals.

Full Text

Preamble

Exploration and Practice of Transformation and Development of Sci-Tech Journals in the All-Media Era

Li Yuwei[1], Li Wei[2]

(1. Machinery Industry Information Institute, Beijing 100037; 2. Liaocheng University, Liaocheng, Shandong 252000)

Abstract

[**Objective**] As media convergence continues to deepen, traditional journals face unprecedented challenges. Based on practical work experience, this paper conducts a preliminary exploration of the transformation and development of sci-tech journals in the all-media era. [**Method**] We analyze the various challenges brought to sci-tech journals by the rapid development of new-generation information technology, and examine development strategies utilizing multiple new media platforms in the all-media context. [**Results**] The transformation of sci-tech journals in the all-media era must prioritize content as king, establish journal brands, and comprehensively build a new media communication matrix through diversified new media communication strategies. [**Conclusion**] The all-media era provides diverse channels and platforms for the dissemination of sci-tech journals. Sci-tech journals should actively collaborate with self-media and new media, leverage emerging communication trends such as short videos and live streaming, promote integrated media development, and create entirely new communication models for sci-tech journals.

Keywords: All-media; Sci-tech journals; Media convergence; Transformation development; Journal brand
CLC Number: G202
Document Code: A
Article ID: 1671-0134(2025)02-98-05
DOI: 10.19483/j.cnki.11-4653/n.2025.02.019
Citation Format: Li Yuwei, Li Wei. Exploration and Practice of Transformation and Development of Sci-Tech Journals in the All-Media Era[J]. China Media Technology, 2025, 32(2): 98-102.

The rapid development of new-generation information technology and the swift rise of new media platforms have fundamentally transformed how people access information and their reading habits, characterized by diversification, visualization, personalization, and fragmentation. These changes have driven continuous innovation in communication methods, product forms, and business models, posing strong challenges to traditional media represented by newspapers, journals, radio, and television, while simultaneously creating new development opportunities for them.

1. Challenges Faced by Sci-Tech Journals in the All-Media Era

1.1 Impact of New-Generation Information Technology

The all-media era, characterized by fast, convenient, and efficient transmission technologies, has seen new-generation information technologies such as big data, artificial intelligence, cloud computing, and blockchain gradually applied across various fields, transforming traditional knowledge production models and information delivery methods. If sci-tech journals rely solely on conventional pro-

duction and dissemination methods, they will fail to meet the communication demands of scientific research achievements in the all-media era. Therefore, sci-tech journals must adapt to and adopt new technological trends to accelerate knowledge and information collection, creation, and dissemination, achieving efficient and effective information transmission.

Based on new-generation information technology, sci-tech journals can reshape their entire business processes from manuscript solicitation and peer review to editing and distribution. This approach further improves information access and communication channels, establishes digital service platforms, and realizes fully digitalized and integrated online submission, review, editing, proofreading, and production workflows, thereby enhancing production efficiency, quality, and overall communication impact.

1.2 Impact of New Media Platforms

New media platforms refer to internet-based media platforms, including social media, Weibo, WeChat Official Accounts, video websites, and live streaming platforms. These platforms, characterized by convenience, speed, and strong interactivity, have attracted massive user bases and become important channels for information acquisition and communication in the all-media era. However, sci-tech journals typically focus on specialized content editing and publishing, with relatively single communication methods and limited coverage. Actively leveraging the communication advantages of new media to promote deep integration between sci-tech journals and media has become an inevitable trend for enhancing their communication impact [3].

Currently, many sci-tech journals have established Weibo accounts and WeChat Official Accounts to regularly or irregularly push industry information, technology trends, and electronic versions of papers to readers in order to expand their audience base, but the results have been unsatisfactory. Fundamentally, this is because these journals have not transformed their traditional mindsets. The transformation of sci-tech journals in the all-media era is not simply about converting print content into digital formats for audience consumption [5]; rather, it requires a conceptual shift toward using internet thinking to guide publishing work.

1.3 Intensifying Content Homogenization

Media convergence has accelerated information dissemination and dramatically increased information volume, inevitably leading to content homogenization. Since sci-tech journals primarily publish research findings, industry hot topics, and technical information, information homogenization causes journals in the same field to easily focus on identical hotspots, organize similar special issues, and set up comparable columns. This intensifies content homogenization among sci-tech journals, resulting in convergent manuscript content and uneven quality.

To avoid homogenization, sci-tech journals must establish clear content positioning, highlight their unique advantages based on the specific circumstances of their supervising and sponsoring institutions, and strengthen the development of distinctive and key columns to achieve differentiated development. When organizing special issues and setting up columns on current hot topics, journals should conduct careful segmentation, select appropriate angles and themes, and emphasize their own characteristics rather than blindly following trends.

1.4 Shortage of All-Media Talent

In the all-media era, to enhance influence and competitiveness, sci-tech journals must adapt to internet communication trends of mobility, socialization, visualization, and interactivity. Using "two micros and one terminal" (Weibo, WeChat, and APP) as carriers, they should comprehensively employ multimedia forms to produce content that meets users' diverse and personalized needs across multiple terminals [4]. This requires editorial staff to possess not only professional academic backgrounds, rigorous editing attitudes, and solid computer skills, but also internet thinking capabilities. They must be able to create platform-specific content for websites, videos, Weibo, WeChat, APPs, and forums while managing regular publishing work, conducting journal promotion, reader services, and content information services.

However, the sci-tech journal field currently faces a severe shortage of talent capable of all-media operations. When traditional journal editors produce new media content, they often simply copy and paste print content, which fails to meet the reading habits and needs of new media platform users. Conversely, dedicated new media editors, while familiar with platform operations, often lack understanding of sci-tech journal content, focusing excessively on attracting attention at the expense of academic rigor and failing to reflect the distinctive features and key content of sci-tech journals. In some cases, new media editors are only responsible for publishing content while textual material is provided by journal editors, resulting in a strong sense of disconnection in new media publications—visually modern but textually still in traditional journal format.

2. Development Strategies for Sci-Tech Journals in the All-Media Era

2.1 Internet Thinking

Therefore, sci-tech journals must rethink their content production and dissemination methods, actively transform toward all-media operations, establish new digital strategies, and build comprehensive all-media communication matrices. They should actively collaborate with various new media platforms to provide diverse content formats—including text, images, audio-video, and live streaming—thereby expanding their dissemination channels and coverage. Internet thinking involves approaching problems from an internet perspective, using the

internet as a tool to reduce costs and improve efficiency, and leveraging internet information advantages to transform operational processes and models.

2.1.1 User Thinking *The Nine Dimensions of Internet Thinking* identifies nine dimensions of internet thinking, among which user thinking is one of the most important approaches [6]. User thinking requires standing from the users' perspective, being guided by user needs, and helping users solve real-life difficulties and pain points as much as possible. To establish user thinking, sci-tech journals must shift from the traditional "editorial sovereignty" to "user supremacy," empowering and serving users. The audience of sci-tech journals typically comprises researchers, academics, or technical professionals who use these journals to showcase their research findings and innovative experiences while learning from others' work and insights. To excel, sci-tech journals must consider how to better serve this demographic and enhance their user experience.

2.1.2 Crossover Thinking The development of the internet has brought breakthroughs not only at the technical level but also in business models, social networks, and innovative thinking. Internet crossover thinking refers to integrating knowledge, technology, and resources from different fields, breaking traditional industry boundaries, merging online and offline channels, and creating entirely new models and pathways.

Similarly, when conducting all-media operations, sci-tech journals must employ crossover thinking. They should not simply copy and paste print journal content for publication but must consider the needs of new media users, avoid lengthy text passages, make greater use of audio-visual materials, achieve three-dimensional presentation combining text, images, and sound, leverage video-based channels to build all-media communication matrices, activate the social attributes of journals, and serve as effective platforms for communication between readers and authors.

2.2 Building Journal Brands

Brands constitute an important component of a journal' s intangible assets, and brand building forms the foundation for long-term journal development. In the all-media era, as media convergence deepens, sci-tech journals are undergoing digital transformation and upgrading. However, many still lack appropriate brand concepts, maintain vague and wavering positioning, and continue using the traditional format of "science and technology policy + sci-tech developments + academic papers," mixing these three article types in a single publication with serious content homogenization. This generic structure results in ambiguous audience positioning, unclear core value propositions, and difficult brand positioning, making journals easily replaceable by other media. For authors, it makes little difference which journal they submit to; for readers, content across journals appears largely similar, or they can obtain relevant information directly

from other new media platforms or channels. How to conduct brand building and enhance brand influence represents an urgent problem that sci-tech journals must address.

2.2.1 Highlighting Distinctive Characteristics When building their brands, sci-tech journals must combine their unique features to eliminate homogenization. For sci-tech journals, unique content value holds the most core significance. Therefore, they must select original content that aligns with their positioning, innovate presentation formats in special issue planning, establish distinctiveness and authority, and continuously create a sense of trustworthiness for readers and authors through brand awareness, thereby enhancing core competitiveness [7].

In content development, journals must strengthen their distinctive features by building key and characteristic columns that allow readers to immediately identify content priorities. Presentation formats can also break away from the traditional "three-pronged approach" of policy, developments, and papers. For example, journals could organize roundtable discussions with experts on industry hot topics, conduct pro-and-con dialogues, or present technological developments along timelines, while also incorporating innovative design elements in layout.

2.2.2 Creating a "Persona" In the all-media era, image-based management has become normalized, with successful "persona" cases across various fields. In early 2024, Harbin became a viral sensation by adopting the persona of a warm male character named "Erbin," instantly becoming a top trending topic. Successful image management can significantly enhance brand recognition.

Sci-tech journals can also actively establish appropriate "personas" to strengthen impressions among user groups. For instance, journals supervised by national ministries or government institutions can highlight their official background, focusing content development on being "authentic and reliable, professional and authoritative, and deeply interpretive" to create a "professional" and "authoritative" persona. Popular science journals, meanwhile, should maximize their influence on new media platforms, particularly by strengthening interaction with users or fans and appropriately catering to younger audiences' preferences by adopting trendy personas such as "erudite," "adorable," "tsundere," or "aloof."

The communication strategy of *Natural History* magazine on Sina Weibo exemplifies remarkable success, amassing over 13 million followers. Positioned as "a science communication magazine for teenagers covering humanities, biology, nature, and geology," the magazine' s Weibo content primarily features common flora and fauna from daily life, presented in a unique, witty, and humorous language style that makes science popularization accessible and entertaining. Its Weibo account frequently interacts with fans, becoming the first resource that active users think to consult when encountering unfamiliar plants or animals [8].

2.3 Content is King

As new media types continue to emerge, some attribute the decline of traditional media to technological backwardness and have shifted their development focus to "technology," championing "product is king" while neglecting content development. They invest substantial human, material, and financial resources in technological "renovation" and even "repackaging," ultimately resulting in severe content convergence across platforms while supplying insufficient high-quality, original information that truly benefits readers.

While new technologies have indeed broken traditional media communication patterns, fundamentally changing media production, presentation, supply, and dissemination, readers' demand for information and ideas only grows stronger regardless of how communication media or platforms evolve. Although technologies like big data and AI can make news communication faster, more precise, and more personalized, they can also lead to increasing entertainment- and traffic-driven journalism. Sci-tech journals, however, bear the historical mission of disseminating scientific achievements, popularizing scientific knowledge, and improving public scientific literacy. They must leverage their professional strengths to produce substantial, in-depth, and comprehensive content, vigorously promote academic ethics and scientific spirit, and set the record straight. Consequently, sci-tech journals must adhere to "content is king," maintain professionalism, cultivate vertical content, improve topic planning, innovate content presentation, and empower high-quality content production and dissemination using new-generation information technology and various new media platforms —never putting the cart before the horse.

2.4 Compound Editing Talent

In the all-media environment, sci-tech journals have witnessed changes in content production methods, workflows, and dissemination patterns, as well as shifts in audience mentality and behavior. Sci-tech journals should actively explore the construction of "two micros and one terminal" and establish deep cooperation with quality new media platforms. Editorial staff must also transform their work patterns to continuously adapt to the transformation needs of sci-tech journals, shifting from text workers to comprehensive business practitioners, from content processors to service providers, from paper-based workers to information processors, and from traditional practitioners to innovation integrators [9]. They can enhance their compound editing capabilities through various approaches, such as participating in relevant editorial skills training programs, learning from and drawing on excellent industry examples, attending lectures, and purchasing learning materials to enrich their knowledge base. Editors should proactively learn work methods and approaches suitable for the all-media context and apply them adaptively to practical work, transforming into compound editors with both professional editing and proofreading skills and internet thinking.

3. Transformation Practice of Sci-Tech Journals

3.1 Platform Construction

Building a complete sci-tech journal management information system to achieve fully digitalized and integrated online submission, review, editing, proofreading, and production is the inevitable path for sci-tech journal publishing and the foundation for realizing digital publishing and media convergence publishing. A comprehensive sci-tech journal information management system includes an official journal website and a remote manuscript processing system.

Capable sci-tech journals should strive to establish their own official websites, which can serve as important components of journal brand identity, showcasing the journal' s characteristics, editorial policies, and historical evolution. Official websites also provide authors with direct and convenient submission channels, increase journal transparency and interactivity, and enable readers to access journal information more conveniently, thereby enhancing the journal' s professionalism and authority.

The remote manuscript processing system can be built within the official website. If a journal lacks an official website, it can build a standalone remote manuscript processing system or directly use third-party systems. Currently, many mature third-party remote manuscript processing system providers exist in the market, such as CNKI and Qinyun. Sci-tech journals can choose to build their own systems or use third-party solutions based on their specific circumstances.

3.2 Official Account Operation

WeChat Official Accounts offer advantages such as direct reach to target audiences, low cost, and high communication efficiency, making them important channels for promotional interaction and mobile reading. Many Chinese sci-tech journals have established official WeChat accounts, but their influence generally remains weak compared to mass media [10]. The most critical aspects of WeChat Official Account operation are content and frequency. Both traditional and new media must adhere to "content is king," winning the market with excellent content [11]. Simultaneously, new media must pay attention to update frequency and timeliness, actively capture hot topics, and utilize internet memes to attract more reader clicks.

Sci-tech journals' official WeChat accounts can employ multimedia methods—such as video, audio, and images—to enrich content forms and types, improve readability and comprehensibility, and increase reader stickiness and loyalty. For example, videos can introduce research processes and results, audio can explain expert viewpoints, and dynamic images can display experimental data and outcomes. Additionally, these accounts must actively organize fan interactions by establishing fan groups, distributing holiday red envelopes, and organizing welfare activities to close the distance with followers.

The content strategy of the author' s sci-tech journal on its WeChat Official Ac-

count follows the principle of "flexibly using audio-visual materials to showcase new perspectives from industry leaders." The account pushes content every afternoon, primarily including: weekly regular updates on latest research findings, exclusive interviews with renowned industry experts, latest technical information, and coverage of exhibitions and academic activities, focusing on exclusive and first-hand information while avoiding republishing press releases from other media, supplemented with audio assistance. In conjunction with each issue' s key special topics, the journal presents exciting content through short videos or H5 pages on a monthly basis. Quarterly, it releases a video version of "Expert Lectures," inviting well-known industry experts to interpret current hot issues, explain their research findings and approaches, and answer questions collected from fans in advance. During Chinese holidays, the journal organizes collection campaigns among fans for photos showcasing frontline workers, calligraphy and paintings, or heartfelt sentiments and blessings, which are compiled and pushed on holiday days. Simultaneously, the WeChat Official Account initiates discussions on relevant topics, inviting readers to share their views and organizing voting and liking activities among followers, with small gifts for top voters or most-liked entries. Such interactions not only enhance fan and reader engagement but also help journals understand reader needs, further improving content quality and journal influence.

3.3 Short Video Business

Short videos generally refer to videos under five minutes in duration disseminated on internet-based new media platforms, typically requiring creators to edit raw footage and supplement it with high-quality images, background music, subtitles, and 3D animations when necessary [12]. With the continuous development of 5G and next-generation video compression technologies, short videos have increasingly participated in and restructured people' s information exchange and lifestyle patterns, becoming a universal application medium.

The *China Network Audio-Visual Development Research Report (2024)* shows that obtaining news information and learning related knowledge have become important reasons for users to watch short videos [13]. Currently, short video platforms have become important venues for knowledge dissemination and popular science, with major video platforms launching knowledge-based sections covering humanities, social sciences, natural sciences, and other professional fields.

Integrating with short videos represents not only a requirement imposed on sci-tech journals by changes in readers' habits and information acquisition methods but also a necessity for academic communication.

Short videos serve as an important channel for sci-tech journals to strengthen communication with readers and improve service quality. Content for short videos can include introductions to research findings published in the journal, the journal' s content positioning, topic priorities, call for papers, or key points

for technical paper writing and expert review requirements. Such content can be created using abstract text and images as source material. Journals can also produce short videos featuring renowned industry experts interpreting hot issues or introducing cutting-edge research, as well as popular science videos on domain-specific knowledge. Additionally, journals can invite authors of published papers to create short videos sharing their writing 思路 and experiences for exchange and learning with readers seeking to publish. When producing short videos, care should be taken to minimize entertainment elements, and after publishing on short video platforms, active interaction with fans should be maintained to guide audience discussion of the videos' viewpoints and theories.

Producing short videos requires extensive use of new media production software. Sci-tech journal editors should promptly learn to use relevant new media software, understand application techniques of new media technology in media convergence product production and dissemination, and familiarize themselves with characteristics and patterns of different media communication forms and symbols. Furthermore, editors should pay attention to platform hot traffic, make good use of platform traffic support, and monitor current hot topics in real time. For example, when publishing videos on Bilibili or Weibo, they can select corresponding knowledge categories and different "knowledge topic tags." Douyin platform offers fixed topics such as "Knowledge Creator" to promote and attract traffic for knowledge-based videos. When publishing videos, selecting appropriate traffic support can achieve precise push, thereby reaching more potential audiences and enhancing influence.

3.4 Live Streaming

Live streaming is a form of real-time online interactive content dissemination that uses computers, mobile phones, and other devices to broadcast live video or audio through internet platforms, sharing knowledge or experience with netizens. This communication format features strong immediacy and interactivity, allowing audiences to engage in real-time exchanges with hosts through bullet comments, comments, or likes [14].

As an emerging internet communication method, live streaming also represents a new content production approach. For sci-tech journals, live streaming provides a platform for real-time direct interaction with readers, compensating for the interactivity deficiency of traditional media [15].

Sci-tech journals can regularly organize exchange activities through online live streaming, inviting peer reviewers and paper authors to join journal editors in discussions on paper writing essentials and review considerations. Other viewers and readers can participate in live interactions at any time, expressing their viewpoints and comments on discussed topics and engaging in real-time Q&A. Through live streaming, readers and viewers can communicate promptly with experts, authors, and editors to understand the journal's content priorities, review considerations, paper writing requirements, and industry research trends

and frontiers. Live videos featuring journal paper authors can be recorded and saved during streaming, with QR codes generated and attached to relevant papers, allowing print journal readers to scan and watch author explanations and expert review comments.

Sci-tech journals can also live stream academic conferences, major exhibitions, significant events, and exclusive interviews, enabling readers unable to attend these activities to participate and gain more opportunities to understand industry technology trends and academic exchanges. This effectively disseminates the latest research findings and industry developments, enhancing journal influence and coverage.

Before live streaming, promotion across multiple channels—including official websites, WeChat Official Accounts, Weibo, and fan groups—can attract more reader participation. During streaming, hosts should actively interact with readers and conduct in-depth analysis and discussion of topics. After streaming, highlight clips can be published on short video platforms to inform more readers about the content and attract their participation.

In the all-media era, with rapid technological development and endless emergence of new media and platforms, sci-tech journals must take content as their foundation, combine new media communication concepts, build diversified media social platforms, construct all-media communication matrices, continuously deepen media convergence innovation, promote comprehensive transformation of sci-tech journals, and explore development paths suitable for themselves. They must strengthen construction across multiple dimensions—including content, workflow, dissemination, and interaction—enhance professional capabilities, broaden publishing perspectives, and achieve high-quality development of sci-tech journals.

References

[1] Zhao Bin. Opportunities, Challenges, and Paths: Analysis of Social Science Journal Transformation in the All-Media Era[J]. News World, 2022(11): 11-14.
[2] Zhang Junxing. Research on Traditional Journal Transformation and Development from the Perspective of Deep Media Convergence[J]. Journal of News Research, 2021(12): 8-12.
[3] Zhang Ruilin. Reflections on Enhancing the Communication Power of Sci-Tech Journals in the All-Media Context[J]. Journal of Zhejiang University (Humanities and Social Sciences), 2021(1): 128.
[4] Jiang Xiao, Xie Xuan, Ye Fang. Coping Strategies for Sci-Tech Journals in the Context of Digital Reading[J]. Journal of News Research, 2016(24): 263-264.
[5] Huang Qingfa. Analysis of Development Dilemmas and Strategies for Sci-Tech Journals from the Perspective of New Media[J]. New Media Research, 2019(5): 72-73.
[6] Lin Xueyi. Optimization and Enhancement of Sci-Tech Journals by Internet Thinking[J]. New Media Research, 2019(9): 115-116.
[7] Zhang Chunyan. Brand Awareness of Journal Editors[J]. Communication

and Copyright, 2018(5):
[8] Li Xingpei. Analysis of the Communication Strategy of *Natural History* Magazine on Sina Weibo[J]. Today' s Media, 2018(2): 126-128.
[9] Wang Fei. How to Cultivate Compound Journal Editing Talents in the All-Media Era[J]. Culture Industry, 2023(21): 64-66.
[10] Li Wei, Jiang Bo, Wang Lei, Zeng Jie. Current Status and Development Ideas of Media Convergence for Sci-Tech Journals[J]. Today' s Media, 2023(5): 44-47.
[11] Ping Jingbo, Guo Zheng. Analysis of the Operation Model of WeChat Official Accounts for Sci-Tech Journals[J]. Media, 2018(15): 26-27.
[12] Wang Zi. Research on the Development Status and Integration of Short Video Platforms for Academic Journals in the 5G Era—Taking Douyin as an Example[J]. Publishing and Distribution Research, 2020(2): 61-66, 60.
[13] Liu Yang. China' s Online Audio-Visual User Base Reaches 1.074 Billion[N]. People' s Daily, 2024-03-28(12).
[14] Liu Fei, Zhang Di, Cui Yueqing, et al. Research on the Current Status, Problems, and Countermeasures of "Live Streaming" for Journals[J]. Editorial Forum of University Journals, 2023(0): 430-
[15] Yu Yue. The Impact and Expansion of Online Video Live Streaming on Science Communication[J]. Science Communication, 2016(22): 97-98, 104.

About the Authors: Li Yuwei (1982–), female, from Yanggu, Shandong, holds a master' s degree, is an intermediate-level editor and executive deputy editor-in-chief, with research interests in media convergence; Li Wei (1971–), female, from Liaocheng, Shandong, holds a master' s degree, is an associate professor, with research interests in library intelligence and information management.
(Responsible Editor: Li Jing)

Note: Figure translations are in progress. See original paper for figures.