Postprint: Review and Reflection on the Informatization Development of Xinhua Newspaper Media Group

Authors: Wang Hongjun, Jinsong Zhang, Xu Hang

Date: 2023-10-08T00:00:00+00:00

Abstract

As technological capabilities continue to advance, media convergence is progressing into deeper territories, with the public gaining access to an increasingly diverse array of channels and methods for information acquisition. The development of informatization in mainstream media assumes a pivotal role within media convergence. Party newspaper groups must leverage information technology as a strategic lever to continuously propel media convergence. This article, from the perspective of Xinhua Newspaper Media Group' s informatization construction, examines and expounds upon the necessity of informatization development, proposes future developmental pathways for Xinhua Newspaper Media Group' s informatization, and substantiates the significance of informatization development in media convergence.

Full Text

1. The Development History of Xinhua Newspaper Media Group' s Informatization

As media convergence advances into deeper waters, the continuous maturation of 5G, big data, artificial intelligence, and IoT technologies has made informatization increasingly critical in the media integration landscape. *Xinhua Daily*, born in the flames of war, has evolved from the "lead and fire" era through "light and electricity" and "number and network," and now enters the age of "intelligence and cloud."

The "lead and fire" era began on January 11, 1938, when *Xinhua Daily* was founded in Hankou. Like other newspapers nationwide, it relied on lead type printing until the 1980s—a laborious process involving type casting, plate making, typesetting, page assembly, paper molding, plate casting, and printing. In 1981, Professor Wang Xuan of Peking University successfully developed China' s

first computer laser Chinese character phototypesetting system, revolutionizing traditional printing. *Xinhua Daily* adopted this system in 1986, bidding farewell to the "lead and fire" era.

The "light and electricity" era brought dramatic improvements. Computerized Chinese character input, digital layout, laser proofing, and laser film output significantly shortened workflows, boosted efficiency, and enhanced print quality and capacity. This technological leap propelled the newspaper's rapid development, enabling full-color printing starting in January 1998.

The "number and network" era saw the complete digitalization and networking of the entire process—from planning and gathering to editing and distribution. Newspaper pages were designed on computers, with proofs output for electronic approval before being transmitted via network to printing plants for decryption and production. Remote transmission systems enabled timely delivery of page information to remote printing locations, ensuring that readers in other regions received the latest editions. In 2012, Xinhua Newspaper Media Group (hereinafter "the Group") conceptualized and planned a "central information kitchen" to build an all-media business platform. By 2014, when the Group relocated to its new Hexi building, this central information kitchen was fully operational, laying a solid foundation for media convergence.

The "intelligence and cloud" era leverages artificial intelligence, cloud computing, and big data to enable intelligent news production. Since 2017, technologies such as big data analytics, robot journalism, intelligent proofreading, user profiling, and smart recommendation have been integrated into every aspect of the editorial process. The Group established dedicated lines connecting public and private clouds, creating an integrated hybrid cloud called "Jiaohui Cloud" through a unified cloud management platform. In January 2019, the Group's all-media command center officially launched, building upon the dual foundations of Jiaohui Cloud and a converged middle platform to establish three major platforms: "converged media production," "intelligent media expansion," and "command management." This architecture enabled a "networked workflow" for content gathering, editing, and distribution across the media matrix, along with a "multi-domain architecture" tailored to county-level media convergence needs. "Fingerprint service" technology was implemented across multiple systems to enable unified ID-based manuscript management throughout the entire workflow, opening new horizons for the Group's deepening media convergence.

Today, the Group has developed into a mainstream media matrix comprising 14 newspapers, 8 journals, 13 news websites, 9 mobile clients, 1 mobile newspaper, and over 100 micro-media accounts. In this internet landscape, informatization plays an increasingly vital role.

2. The Necessity of Informatization Development for Xinhua Newspaper Media Group

In September 2020, the General Office of the Communist Party of China Central Committee and the General Office of the State Council issued the *Opinions on Accelerating the In-Depth Development of Media Convergence* (hereinafter referred to as the *Opinions*), which clarified the overall requirements for media convergence development from three perspectives: significance, objectives, and working principles. This document sets higher standards for media informatization development, prompting the question: what role does informatization play in media convergence?

2.1 Empowering Content Production

With the advent of the internet era, emerging technologies such as 5G, artificial intelligence, big data, blockchain, and immersive applications have emerged in large numbers, impacting all industries. The Internet of Everything has diversified the channels and methods through which people receive information, requiring mainstream media to continuously strengthen informatization construction to provide effective support across all aspects of news reporting, operations, talent management, and business processes to meet the demands of the new era. During the 2021 Two Sessions coverage, the Group leveraged its all-media command center and Jiaohui Cloud platform to capitalize on its content strengths, employing new media technologies including 5G, AI, infographics, data journalism, H5, animation, live streaming, audio-video content, and Vlogs to create a large number of refreshing converged media products that diversified communication formats. Frontline reporting teams used the command and dispatch module to complete topic planning and task assignment, with the entire gathering, editing, reviewing, and distribution process conducted on the command center' s Jiaohui Cloud platform. This broke physical space limitations and enabled collaboration between frontline and backend teams, providing strong support for content production.

2.3 Strengthening Audience Connection

The current landscape has witnessed profound changes in public opinion ecology, media structure, and communication methods amid rapid information technology development. The emergence of full-process media, holographic media, all-staff media, and all-effect media requires mainstream media to strengthen innovation in concepts, content, forms, and methods, making positive energy stronger and the main melody more resonant to improve the quality and level of positive propaganda. During the pandemic, frontline reporters in Wuhan and Huangshi completed reporting tasks and transmitted interview materials through the command center platform. The platform facilitated multiple live broadcasts including "Jiangsu Medical Team Departs for Huangshi," "Dialogue with COVID-19 Recovered Patients," and "Provincial Health Department Epidemic Prevention Guidelines," attracting 300,000 online viewers.

2.4 Continuously Empowering Business Operations

As President Xi Jinping has pointed out, "Content is always fundamental; integrated development must adhere to content as king, using content advantages to win development advantages." On this premise, we must promote the integration of technology and channels, solve content convergence through digitalization, address technology integration through innovation, and achieve channel (platform) integration through sharing and consolidation. The new situation places higher demands on media professionals regarding information technology application, requiring them to possess technical cognition, technical consciousness, and technical sensitivity. Only then can they fully utilize technical means when good ideas emerge, innovate converged media products, occupy the commanding heights of public opinion, and better promote content supply-side structural reform.

3. The Development Path of Xinhua Newspaper Media Group' s Informatization

The Party Central Committee has pointed out the direction for media convergence development. In the all-media era, propaganda and ideological work is a crucial task for the Party. Party media must take unifying thought and gathering strength as the central link, and take serving the central task and the overall situation as the basic responsibility. This requires effective use of informatization to innovate content presentation and communication formats, extend the influence of traditional media into cyberspace, build a multi-channel communication matrix, and form concentric circles online and offline to better support propaganda and ideological work.

3.1 Building a Technology Platform Adapted to Media Convergence

To continuously advance media convergence in depth, we must build high-quality informatization platforms. Moving forward, the Group will upgrade and expand in areas including command center phase II, 5G converged media, AI smart media, ultra-high-definition video, intelligent media asset libraries, and blockchain to better support deep media integration.

3.2 Building a Converged Content Production System

Media convergence cannot succeed without the support of advanced technology systems; in a sense, it is the progress of information technology that makes convergence possible. The Group has taken process reengineering as the focus of content production mechanism innovation, gradually transforming its editorial structure and workflows according to the needs of media convergence development. In August 2019, the Group jointly established Jiangsu' s first "5G Media Convergence Laboratory" with Jiangsu Mobile to explore 5G-related technology applications. Riding the wave of "new infrastructure" policies and leveraging the strong association, reach, and interactivity of 5G messaging, the Group

launched the "5G Message Two Sessions Portal" during the 2021 Jiangsu Provincial and National Two Sessions, which worked in conjunction with the Jiaohui Point client to deliver comprehensive media information in various forms including text, voice, images, audio-video, and animation, providing users with a one-stop participation experience without requiring a separate app, achieving remarkable communication effects.

By applying the all-media command center platform, the Group has deepened the integration of "newspaper, website, terminal, micro, and screen," forming a complete closed loop of news production encompassing "planning, gathering, editing, distribution, control, dissemination, and feedback" to maximize satisfaction of diverse business needs and build a new all-media linkage matrix. Traditional editorial production, constrained by various factors, can no longer meet the efficiency requirements of new media development. The all-media command center has consistently implemented a "mobile-first" concept, providing full-process support from production to user delivery. The command center and frontline reporters can conduct real-time video linkage to grasp on-site situations immediately. Editorial staff can write stories, submit topics, and upload audio-video content anytime and anywhere via mobile phones. Editors-in-chief can also use mobile devices to view big data analytics, conduct topic planning, assign tasks, quickly complete review and approval, check page proofs and publishing results, and monitor dissemination status. News content is distributed through mobile terminals, reaching users within seconds.

Media convergence also places higher demands on media professionals, requiring journalists and editors to become proficient users and deep participants in new technologies. Understanding everything from specific functions of information systems to the design logic of entire frameworks and the operational mechanisms of interdependent components makes it more likely to efficiently "cook" uniquely appealing news "feasts."

3.3 Driving Continuous Innovation in Key Technologies

The *Opinions* state that advanced technology should lead and drive integrated development. With technology evolving rapidly, we must vigorously cultivate all-media technical talent and continuously explore emerging internet technologies. Only by mastering key technologies can we shift from passive to active, continuously enhancing the competitiveness and appeal of mainstream media. Relying on the all-media command center platform, the Group has established companies such as Xinhua Fenghuo and Xinhua Media Think Tank to continuously export technology, providing public opinion and information services to over 200 institutional users across education, finance, health, power, transportation, retail, and other industries, and dynamically publishing various news reports and analytical products.

Currently, the Group' s technical staff participate daily in planning and editorial meetings of content departments to understand content operations and

introduce information technology developments to editorial staff. During the 2021 Two Sessions, technology empowered content through initiatives such as the "V-Talk Two Sessions" series, intelligent voice synthesis, comparative analysis of keywords from government work reports across years, examining Jiangsu's development through high-frequency terms from the First to the Fourteenth Five-Year Plans, and an MV featuring an AI robot singing "Youthful Centennial Splendor." During the pandemic, the Group developed a big data pandemic reporting map, designed big data analysis scenarios, and assisted editorial departments in producing communication impact analysis reports.

3.4 Implementing All-Media Communication Projects

The 14th Five-Year Plan proposes advancing deep media integration and implementing all-media communication projects to strengthen new mainstream media. This signifies that media convergence will enter a new development phase. Mainstream media must prioritize enhancing communication effects, fully leveraging cutting-edge technologies such as 5G, big data, artificial intelligence, cloud computing, IoT, and blockchain to empower the entire information dissemination process, expand media brand influence, enable Party voices to spread faster and wider, and allow mainstream ideology to reach ordinary households.

With the support of new technologies, the Group's 12 converged media innovation studios have produced original blockbuster content such as "E-Study Together," "Xi Jinping's Words to Remember," and "Flags Fluttering." The "Marxism · Youth Talk" initiative has attracted 20 million participants online and offline and won the China News Award. During the 14th Five-Year Plan period, the Group will deepen its brand advantages and continuously explore the establishment of industry-academia-research technology alliances covering media peers, renowned universities, and high-tech enterprises to strengthen core technology self-innovation capabilities.

3.5 Improving the Informatization Talent Guarantee Mechanism

The key to media convergence lies in talent development. First, we must master new media technologies, build and improve smart converged media platforms, fully leverage the role of information systems, and enhance automation, digitalization, and intelligence. Second, we must intensify efforts to recruit and cultivate information technology talent, improve talent evaluation standards, employment mechanisms, assessment systems, compensation structures, and promotion mechanisms to unlock talent potential. Third, we must enable "boundary-crossing" empowerment in technical work, equipping technical staff with news literacy and understanding of news, convergence, and planning to achieve resonance across "content + technology + operations," thereby better supporting the deepening development of media convergence.

In advancing the transformation and development of deep media integration, Xinhua Newspaper Media Group will continuously enhance its informatization

development level, using the informatization platform as the "load-bearing wall" for the Group' s news and propaganda work and information technology as the "booster" for serving content dissemination.

References

[1] Xinhua News Agency. General Office of the Communist Party of China Central Committee and General Office of the State Council Issue "Opinions on Accelerating the In-Depth Development of Media Convergence" [EB/OL]. http://www.gov.cn/zhengce/2020-09/26/content_{5547310}.htm.

[2] Cheng Wenjing. Profoundly Understanding the Significance of Promoting Media Convergence Development [N]. *Guangming Daily*, 2019-12-16(6).

[3] Li Bin, Zhang Deze, Gu Jianxiang. Reflections on Studying and Understanding President Xi Jinping' s Discourse on Media Convergence Development [J]. *Network Communication Magazine*, 2018(10).

[4] Zeng Xiaochen. A Brief Discussion on the Development Path of Media Convergence [EB/OL]. *Huasheng Online*, http://opinion.voc.com.cn/article/202007/202007301129113371.html, 2020-07-30.

[5] Zhang Xiaohong, Zheng Hongmin. 2021: Responsibility of Party Media, Mainstream Communication [N]. *China Press, Publication, Radio, Film and Television Journal*, 2021-01-05.

Author Biographies

Wang Hongjun (1975-), male, from Yizheng, Jiangsu, Deputy President of Xinhua Daily Newspaper, research direction: media informatization construction.

Zhang Jinsong (1973-), male, from Jixi, Anhui, Director of Technology and Equipment Department of Xinhua Newspaper Media Group, research direction: media technology development.

Xu Hang (1986-), male, from Jiujiang, Jiangxi, Chief of Software Development Section of Technology and Equipment Department of Xinhua Newspaper Media Group, research direction: computer applications.

(Responsible Editor: Chen Xuguan)

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