

## Research on the Value of Big Data Technology in Supporting Converged Media Construction (Postprint)

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### Abstract

With the development of the social economy, the media industry in China has gradually evolved. Supported by big data technology, the industry is progressively transitioning toward integrated media development, and under the influence of 5G networks, an era of integrated media has gradually emerged. Under the auspices of big data technology, the value of integrated media construction is becoming increasingly prominent, with continuous improvement and innovation aimed at enhancing the influence of the media industry to achieve breakthrough, creative, and rigorous intelligent development of integrated media. This paper takes the integrated media era as its primary analytical context, examines the value and significance of big data technology support in integrated media construction for realizing innovative development pathways in the media industry, and proposes effective strategies for readers' reference.

### Full Text

## Research on the Value of Big Data Technology in Supporting Converged Media Construction

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**Abstract:** With socio-economic development, China's media industry has gradually evolved, and under the support of big data technology, it is transitioning toward converged media. Influenced by 5G networks, the era of converged media has taken shape. The value of converged media construction, supported by big data technology, is becoming increasingly prominent, driving continuous innovation and improvement to enhance the industry's influence and achieve

breakthrough, creative, and rigorous intelligent development. This paper analyzes the era of converged media as its primary context, examining the value and significance of big data technology support in converged media construction to realize innovative development paths for the media industry, and proposes effective strategies for reference.

**Keywords:** big data technology; technical application; construction value; information convergence; real-time search

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## 2.1 Current Dilemmas in Converged Media Construction

With the rapid development of internet technology, various information platforms and new media technologies are being continuously applied. Currently, traditional media is gradually forming a development trend toward converged media construction through the support of big data technology, which has made information acquisition channels and methods more efficient and convenient. Big data technology enables rapid analysis and processing of diverse information and data, ultimately achieving swift information dissemination. The media industry must recognize the development prospects and technological advantages of converged media, leveraging big data technology as a supporting foundation to ensure sustainable development and rapid progress, thereby adapting to the converged media era.

However, China's converged media construction currently faces numerous challenges. In the leapfrog development from policy to theory to practice, many dilemmas have emerged due to insufficient integration thinking, homogenization of multi-terminal products, immature talent mechanisms, and inadequate technical means. To address these issues, converged media construction should first utilize local radio and television industries as the foundation, integrating other local media resources. This approach facilitates the transformation of traditional media concepts in practice and employs big data technology to adjust systems and mechanisms. Second, in terms of positioning, the direction of converged media construction must be clearly recognized. Currently, most converged media centers still position themselves merely as media outlets, failing to examine media from an external perspective, not fully leveraging institutional advantages to obtain other scarce resources, and not striving to become a core driver of local governance system and capacity modernization. Additionally, traditional media development concepts remain outdated, with insufficient un-

derstanding of converged media construction models and a lack of technical personnel, making it impossible to realize the utility of big data technology in converged media construction without professional teams. Therefore, the most fundamental step in solving these dilemmas is to continuously strengthen technical requirements for converged media center personnel, meeting the demands of big data technology application with reliable comprehensive qualities and professional technical capabilities, and adhering to high standards and requirements for converged media construction. Finally, based on current media development practices, some converged media centers have minimal connection with television stations and do not sufficiently emphasize the application of big data technology. To achieve healthy converged media development, it is essential not only to grasp communication patterns but also to innovate content and forms, transform content production models, strengthen institutional innovation, and shape core competitiveness when utilizing big data technology, thereby effectively resolving various challenges in converged media construction.

## 1. Significance of Converged Media Construction

Media convergence construction has been highly prioritized in China, as evidenced by the 14th Five-Year Plan, which identifies media convergence as a crucial goal for national medium- and long-term future development. Converged media is not an independent physical media entity but rather a new operational model that integrates the advantages of radio, television, and the internet for mutual utilization, comprehensively enhancing strengths, functions, means, and values. With the gradual development of big data technology, traditional media should leverage this technological support to achieve media convergence, continuously improving content quality and dissemination efficiency. Converged media construction achieves comprehensive integration in human resources, content, and publicity, realizing a new media model characterized by resource convergence, content compatibility, publicity integration, and shared benefits, built upon 5G network technology and integrating multiple media forms.

Under the support of big data technology, numerous information platforms have been established, such as Apps, WeChat public accounts, and Weibo, enabling unified scheduling models for multi-path, multi-channel media dissemination. By combining converged media communication data analysis and big data mining, rapid information convergence, real-time search analysis, and data processing can be achieved, truly realizing integrated in-depth development and one-time information collection with multi-channel analysis and dissemination. This trend not only promotes the rapid development of the radio and television industry but also actualizes the utility of big data technology.

## 2. Analysis of Big Data Technology Application in Converged Media Construction

For media convergence, it is necessary not only to integrate audiences, information, and communication channels but also to achieve rational allocation. Big

data technology is characterized by its diversity, with complex data sources and information types. To rationally allocate data and information, big data technology can first be employed to analyze information and ensure its utility. Meanwhile, information convergence platforms support various types of information data, such as website information, traffic data, and real-time information. Big data technology can rapidly collect domestic and international hotspot data and maximize information value through convergence, ensuring program quality and efficiency in the radio and television industry. In other words, when big data technology integrates global data and information into new media intelligence through information convergence, the timely application of new media and technologies representing future development trends in the radio and television industry enables complementary advantages and common development between traditional and new media. Centered on a new media command hub for information convergence, hot event development can be promptly 梳理. The information convergence and integration project also holds application value in integrating various data resources, strengthening emergency basic information management, and promoting information sharing and mutual use, as it can deepen the analysis and application of emergency basic information and enhance intelligent emergency prediction, early warning, and decision support levels. Thus, big data technology not only promotes the rapid flow of material and information resources needed for scientific innovation but also accelerates the convergence, integration, and sharing of various innovation resources.

## 2.2 Utilization Value of Big Data Technology in Converged Media Construction

Based on practical analysis of converged media construction, the current application of big data technology holds significant value. Through big data technology, not only can accurate direction be provided for converged media construction, but it also enables implementation benefits. First, from the perspective of user construction and website layout, big data technology can effectively provide reference standards for converged media and expand communication channels, continuously promoting construction timeliness from a scientific perspective. Second, when users browse websites or use clients, big data technology can effectively grasp user information needs, enabling users to gain more comprehensive understanding of required information, which not only enhances media cooperation significance but also promotes user value to media. Finally, big data technology can facilitate business development in converged media practice. Media convergence development requires clear cognition of its own business activities and services, and big data technology analysis can provide more reference basis for business practice standards and specific directions, making business service effectiveness more prominent during implementation and overall development conditions more favorable. In summary, big data technology holds certain utilization value for media convergence construction. Facing growing public demands in today's rapidly developing converged media, construction should focus on public needs, adhere to reform and innovation, scientifically ap-

ply the “six-character work method” of leading, integrating, gathering, promoting, guiding, and driving, and high-quality promote the common development of big data technology and converged media construction.

### 2.3 Direction of Converged Media Construction

Currently, following the principle of constructing converged media centers as the core, the direction of converged media construction should follow a mobile-first principle, utilizing big data technology to form certain communication technologies. It should ensure key elements such as channels, coverage, and dissemination, and expand from pure communication methods to public services according to the “media+” concept, continuously enhancing dissemination effectiveness and forming a widely covered mobile communication matrix. To better assist converged media construction and guide and serve the public, China has proposed development directions for converged media construction at the national strategic level. Therefore, to better promote converged media construction, after clarifying its direction, big data technology should be used to form mainstream public opinion positions, comprehensive service platforms, and community information hubs. By increasing data collection dimensions and optimizing algorithms and models, a more widely covered interconnected communication system can be formed, bringing grassroots communication and publicity work into a new environment. To promote converged media construction, media services should utilize information convergence and other technologies to provide users with more information resources through radio and television, WeChat, Weibo, and other clients and Apps in audio, video, and graphic production. Moreover, with deepening practice, converged media construction is not only a profound transformation driving the integrated development of mainstream media but also a foundation for advancing the modernization of grassroots social governance. Converged media construction can provide information release and specialized, modernized, and intelligent publicity and management services for party building, assist in party building work, and realize party building services and government services functions according to the “media+” requirements, contributing to social governance modernization and enhancing the party’s governance capabilities. In the fields of grassroots news communication and cultural publicity, implementing and improving the grassroots social governance system through information release and publicity can provide local users with various value-added services, such as advertising operations, regional operations, and electronic malls. In summary, the direction of converged media construction should shift from one-way communication to multi-interaction forms, providing diversified comprehensive services for party building, government affairs, and user services based on media.

### **3. Role of Using Big Data Technology to Support Converged Media Construction**

#### **3.1 Using Big Data Technology to Achieve Information Convergence for Converged Media**

Big data technology can achieve information convergence for converged media by integrating data resources from various media structures for comprehensive information sources, enabling rapid acquisition of relevant analysis results from massive data inventories to better serve the media industry. Converged media can build information-based data modules within real-time search and analysis platforms and achieve multi-dimensional, diversified information services through interactive data analysis functions. For example, by adopting a network news dynamic analysis model to conduct real-time search and analysis of communication content itself, media nature, and communication paths, the influence and tendency of news events can be more intuitively reflected after analysis. The real-time search and analysis system includes search engine systems, search retrieval systems, and SQL analysis and parsing systems, and the real-time search and analysis engine can support acquisition of multiple data sources and achieve second-level analysis under hundreds of billions of data after integration.

#### **3.2 Using Big Data Technology Support to Realize Real-time Search and Analysis for Converged Media Construction**

In the process of converged media construction, using big data technology as support enables real-time search and analysis of comprehensive information sources from various media structures, allowing rapid acquisition of relevant analysis results from massive data inventories to better serve the media industry. Converged media can build information-based data modules within real-time search and analysis platforms and achieve multi-dimensional, diversified information services through interactive data analysis functions. For example, by adopting a network news dynamic analysis model to conduct real-time search and analysis of communication content itself, media nature, and communication paths, the influence and tendency of news events can be more intuitively reflected after analysis. The real-time search and analysis system includes search engine systems, search retrieval systems, and SQL analysis and parsing systems, and the real-time search and analysis engine can support acquisition of multiple data sources and achieve second-level analysis under hundreds of billions of data after integration.

#### **3.3 Using Big Data Technology Support to Realize Multiple Publishing Forms for Converged Media Construction**

Under the support of big data technology, converged media can achieve multiple publishing forms. For instance, in website publishing, big data technology provides websites with live streaming, graphic and multimedia content trans-

mission, publishing businesses, and realizes autonomous management, interactive management, and publishing models. With diversified App publishing, big data technology has continuously innovated to achieve complete App end-to-end data publishing forms. First, the converged media publishing process consists of users, content, activities, data, channel sharing, and intelligent recommendation, with forms and channels including Apps, WeChat, websites, Weibo, and third-party services. Second, under big data technology support, one-click publishing can effectively improve editing efficiency by releasing information and data to multi-channel platforms. During management, unified multi-channel user management, unified data management, and unified permission management models can be utilized. Because big data technology includes intelligent references, users can quickly crawl relevant articles or information content from the entire network using keywords, providing accurate and comprehensive references for content. Thus, multiple publishing forms created under big data technology support not only expand influence but also possess the strong promotion power of converged media and the strong dissemination power of network media.

### **3.4 Using Big Data Technology to Realize Efficient Media Data Collection for Converged Media Construction**

In media convergence, big data technology can achieve efficient media data collection based on currently visible user data sources, which generally include other media news websites, public accounts, newspaper offices, news television stations, news-related Apps, Weibo, and WeChat. Comprehensive data collection should be conducted based on user data sources, first clarifying the collection scope. For example, when collecting real-time user online behavior data, all-round behavioral data collection can be achieved in real-time, cross-site, and cross-browser manners through various clients and official websites. When collecting business system data, data information collection can be implemented for user basic information, user relationships, user-managed content, user data, and column structures in business systems. When collecting log data, relevant logs from business system operations can be analyzed and collected, and big data technology can support effective collection of unstructured data. When collecting data from partners and industry media, third-party data service systems can be targeted, such as Weibo and public accounts under China Daily, enterprise accounts, etc., as behavioral data. Thus, under big data technology support, not only can highly flexible data collection formats be implemented based on user behavior trajectories, but also real-time, cross-site, cross-browser, and even cross-device collection can be achieved. Second, after collection, a crawling system should be used to convert HTML into formatted data, namely JSON data, to achieve integration with third-party data and big data management platforms, thereby effectively implementing the main content of converged media construction through precise traffic control, JS engines, simulated login, and simulated user behavior.

### 3.5 Building Data Integration and Unification to Form a Complete User Information Visualization

The most critical and fundamental aspect of big data technology is data integration and unification. In converged media construction, data unification is the process of forming a complete user information view by continuously integrating, unifying, and splicing scattered user data. First, converged media generates various interaction processes with users during construction, leaving corresponding traces across different channels. These data and traces are often recorded according to different identifiers—IDs—which are identifiers used to recognize users. In converged media construction, one ID connects and corresponds to one piece of data information, users are recognized by IDs, and user data is scattered across various ID correspondences. For example, various IDs connect user identifiers, which connect email addresses, WeChat, and Alipay accounts. Various IDs connect Apple devices, which connect IMEI, MAC systems, IDFA, and IDFV. In other words, various IDs connect systems organized from different perspectives, representing different data and units. Second, data integration and unification not only enables applications after digital transformation but also achieves certain asset 沉淀 for data assets in converged media construction. When perfecting user profiles, integrated data unification plays a role in clustering similar users based on shared interests, enabling unified regulation of user data assets and comprehensive analysis of user processes and behavior patterns. For example, by extracting thousands of data behaviors for each user based on online content preferences, website visit preferences, click behavior characteristics, browsing behavior preferences, App usage preferences, and social account preferences, similar users can be clustered. By selecting users near cluster centers and adding some auxiliary preparations for judgment, users can be merged.

### Conclusion

In summary, big data can be used as a support in converged media construction to achieve innovative development. By utilizing resource integration technology, real-time search and analysis technology, and data processing technology, the healthy development of the converged media industry can be realized, thereby promoting innovation and optimization paths for the media industry. By exploring a media convergence approach and establishing a unified converged media platform matrix model integrating newspapers, television stations, and networks, sustainable social development under converged media construction can be effectively promoted.

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

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