

A Study on All-Media Convergence Technology Platform Construction (Post-Print)

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Abstract

Based on the development characteristics of print media, this paper analyzes the construction of all-media convergence platforms for newspaper groups from perspectives including overall design principles of the technical platform, platform architecture, and detailed platform descriptions, aiming to explore a universal basic platform construction approach for newspaper groups nationwide.

Full Text

Preamble

An Exploration of All-Media Convergence Technology Platform Construction

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Abstract: Based on the development characteristics of print media, this paper explores the construction of all-media convergence platforms for newspaper groups from the perspectives of overall design principles, platform architecture, and detailed platform components, aiming to identify a universal foundational platform construction approach for newspaper groups nationwide.

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1.3 Safe, Reliable, Efficient, and Easy-to-Use

Since the 18th National Congress of the Communist Party of China, the Party Central Committee with Comrade Xi Jinping as General Secretary has attached

great importance to the integrated development of traditional and emerging media. General Secretary Xi has repeatedly emphasized the need to utilize new technologies and applications to innovate media communication methods. In project construction, the security and confidentiality of data resources must be prioritized to ensure the network and system possess excellent security, stability, reliability, and usability. General Secretary Xi Jinping has also made profound elaborations on promoting media convergence development, emphasizing that the key to convergence development lies in achieving true integration and unity, and that we must quickly move from the “addition” phase to the “integration” phase, striving to build a batch of new mainstream media. These important discussions point out the direction for promoting deep media convergence.

1.4 One-Time Construction, Continuous Development

To ensure the advanced nature of the overall platform structure, system design should fully consider flexibility and scalability. Changes in management methods, increases or decreases in system nodes, and software/hardware upgrades should not significantly impact system operation.

2. Platform Architecture

When constructing an all-media convergence technology platform, newspaper groups should adopt a media transformation mindset, architecting for the future convergence of creative and marketing channels while accommodating existing traditional media production workflows. The platform should integrate big data and artificial intelligence technologies into every aspect of media operations, from information gathering, resource management, and content creation to publishing, distribution, operational support, and feedback. The entire all-media convergence technology platform comprises 11 sub-platforms, including a media resource gathering platform and an all-media resource management platform. The architecture diagram is shown below.

3. Functions of Each Sub-Platform

3.1 Media Resource Gathering Platform

This platform enables the collection of internet data from websites, Weibo, WeChat official accounts, blogs, forums, and digital newspapers, as well as internal data aggregation. It gathers data of different formats and sources, performs data collection and cleansing, and provides unified storage, achieving comprehensive integration of internal and external data to build a complete media resource gathering platform that offers full-spectrum data support for various application systems and users.

3.2 All-Media Resource Management Platform

The media industry ranks third among all industries in data volume. Building an efficient all-media resource management platform enables centralized management of various media resources. By employing big data management technologies, the platform provides resource services for news production through multi-dimensional data classification. Through domain classification, multi-dimensional clustering, intelligent association, and automatic topic aggregation, resource information is extracted into interrelated decision-making knowledge, forming a potential knowledge association network in the media resource center. Simultaneously, integrated management of all-media resources can effectively expand news topic selection, strengthen creative materials, improve news information utilization, reduce news product processing costs, and meet personalized user needs, ultimately enhancing the core competitiveness of media groups.

3.3 Media Intelligent Analysis and Decision-Making Platform

Based on big data intelligent analysis, combined with natural language processing and data mining technologies, and integrating the latest research findings in Chinese information processing, artificial intelligence, and information retrieval, this platform provides automatic keyword and abstract extraction, automatic classification, and automatic clustering for text content. It also enables trend analysis, evolution analysis, and sentiment analysis for events or topics, thereby providing technical support for content planning, public opinion analysis and guidance, resource centralized control, editorial assistance, content dissemination evaluation, user behavior profiling, precise news services, and social fragmented data applications.

3.4 Integrated Collection, Editing, and Distribution Platform

By adopting a workflow engine to customize collection, editing, and distribution processes for different media, this platform achieves unified editing and distribution across various channels including newspapers, websites, apps, Weibo, and WeChat. It realizes one-time collection, N-times processing, tiered generation, multi-format adaptation, multi-channel distribution, full-terminal dissemination, and all-media coverage, enabling content editing and publishing for all newspaper group outlets—including newspapers, websites, clients, Weibo, and WeChat—through a single platform.

3.5 Socialized Mobile Collection and Editing

Personnel from all departments can use mobile terminals to enhance their ability to access information anytime, anywhere, and to report breaking news quickly. During emergencies, on-site information can be pushed back to the newsroom in real time. Through multiple terminals, the platform enables timely discovery and reporting of both online and offline information, unified scheduling and distribution, and collaborative guidance. When breaking news occurs, managers

can issue real-time handling instructions from the command center, monitor implementation effects, and adjust responses according to developments, making topic discovery more proactive.

3.6 Fragmented Management of Media Websites

Traditional media websites and apps have used unified templates with fixed column structures and sequences. In the new media era, netizens have strong personal preferences for news resources, requiring traditional media content management to align with internet practices that emphasize personalized, humanized, and flexible webpage and mobile app configurations. Fragmented management adopts the latest HTML5 technology, managing both websites and mobile apps through fragmented approaches. Headlines, columns, ad spaces, rankings, recommendations, and WeChat/Weibo modules can all be flexibly adjusted based on editorial and user behavior analysis, satisfying both general news enthusiasts and individual users with personalized news 推送 needs.

3.7 Data News Visualization Production Platform

The development of big data technology has made data news a new form of news content dissemination. Data news presents intuitive data charts across print media, online media, and various terminals. This platform enables ordinary editors or graphic designers to quickly create visualized news suitable for various media based on news data and related clues, reducing the need for technical staff to develop visual effects.

3.8 Media Dissemination Effect Analysis Platform

This platform quantitatively evaluates reposting rates, reposting paths, forwarding volumes, reading volumes, likes, and dwell time for news information across newspapers, websites, clients, Weibo, and WeChat on the internet. It provides visualized dissemination effect displays to feed back into news production and effectively guide the group's news production activities. The dissemination influence analysis model implements tiered management of national media, calculates dissemination power indices, and forms influence analysis calculations covering dimensions such as "region," "field," "channel," "author," "department," "column," "time," and combined dimensions. The news dissemination influence analysis platform ultimately provides users with data on their organization's article influence, author influence, department influence, and owned-terminal influence, enabling evaluation and timely 推送 of quality, efficiency, coverage, and influence metrics for news propaganda, helping users grasp their publicity direction, channels, and social influence.

3.9 User Asset Analysis Platform

This platform collects, stores, and uniformly manages user information from all channels, building a unified user management platform. Based on massive

user characteristics and mining technologies, it establishes a labeled information panorama for users, forming a 360° user profile with complete data management and output processes.

3.10 Open Application Platform

The platform must have excellent openness, allowing both third-party companies and development enthusiasts to connect to the media platform for application development through the open application platform. The platform provides these developers with rich interface resources, data resources, and tools, maximizing platform value.

3.11 Big Data Storage and Management Platform

This platform not only supports all-media resource management and query services for the newspaper group's data center but also serves as the storage and retrieval support platform for other business application data. It can perform high-performance storage and multi-dimensional retrieval of massive media resource data, highly integrating big data storage, management, and retrieval.

4. Significance of Building an All-Media Convergence Technology Platform

Building an all-media convergence platform for newspaper groups with content as the foundation and advanced technology as the support will reshape media production and service processes, enabling intelligent and personalized information dissemination and transforming content production toward information services. Through technological advancement, the platform accelerates the complementary advantages and integrated development of traditional and emerging media, ultimately evolving from “you are you, I am me” to “you are me, I am you,” achieving high-level integration of new and traditional media, and effectively improving the dissemination power, influence, credibility, and guidance of traditional media's news and public opinion in the new era.

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

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