

## Big Data Applications | How to Revitalize Media Data Assets and Integrate Operations with Industry Post-Print

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

### Abstract

In the pan-media era, the boundaries of traditional media are dissolving, making cross-media transformation possible on the internet. In this cultural context, media development and innovation require continuously delivering quality content and services, possessing first-class user insight capabilities, and equipping oneself with advanced technology platforms. For instance, the Xinhua News Agency big data analysis and processing platform we participated in constructing is built upon a distribute...

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#### Preamble

In the pan-media era, the boundaries of traditional media are dissolving, making cross-media transformation possible on the internet. In this cultural context, media development and innovation require continuously delivering quality content and services, possessing first-class user insight capabilities, and equipping oneself with advanced technology platforms. For instance, the Xinhua News Agency big data analysis and processing platform we participated in constructing is built upon a distributed parallel computing framework, fully leveraging multi-source data storage, large-scale data retrieval, intelligent text mining, artificial intelligence, machine learning, and other advanced technologies to provide data and technical support for big data applications and Xinhua's independently developed big data-related business applications. The core objective of media convergence innovation is user-centricity—through precise communication, precise marketing, and precise services—to construct a unified user center that delivers information on demand, which represents the essence of smart media.

### 3. The “Integration” of Media Convergence Innovation: Building Ecosystems Through Win-Win Cooperation

For years, Founder Electronics has remained committed to technological innovation, supporting the transformation and evolution of the media industry with new technologies, concepts, models, and strategies. To date, Founder Electronics has participated in media convergence initiatives for nearly 300 newspaper organizations, amassing extensive practical experience in implementing media convergence innovation. In recent years, while providing professional solutions, Founder Electronics has gradually shifted toward platformization and servitization, engaging in services and cooperation with media outlets, enterprises, governments, and vertical market clients. Previously, Founder Electronics undertook content resource development for the vast majority of newspaper organizations nationwide, enabling them to possess data assets. Moving forward, Founder Electronics will fully assist the newspaper industry in building media data markets, encouraging users to undertake government projects and services, constructing regional or vertical market media clouds, and establishing multi-dimensional, multi-batch effective connections with users to obtain new supplies of content and user data, thereby building a media big data ecosystem. Examples include the Hangzhou Media Cloud under construction for Hangzhou Daily, the Wuzhou Cloud built for Wuzhou Daily, the data service platform for Economic Daily, and the “Oil Cube” for China Petroleum News—all of which construct cloud ecosystems in regional and vertical markets. As Sir Tim Berners-Lee once stated, journalists need a keen sense of data and must know how to use different tools to analyze it, enabling the public to clearly understand what is happening in the nation and government. We argue that the role of newspapers is shifting from traditional news collection centers to massive information and data mining centers. The future of journalism lies in data analysis, and the future of media lies in data capability. Media convergence innovation reconstructs user connections through data, achieving iterative data contextualization.

### 1. The “Soft Power” of Media Convergence Innovation: Starting from the “Heart”

As the era evolves, news content is gradually becoming IP-ified, productized, and scenario-based. Media must attract users with warm, attitude-rich quality content and form communities sharing common interests or values. These communities activate user participation and ultimately convert it into consumption. For example, the unified big data operation platform of Dazhong Press Group represents our beneficial attempt in this domain. This platform not only integrates user data, media operation data, and new media content data but also provides data support for reporting command systems, quantitative assessment systems, and marketing systems, offering data backing for various marketing activities of Dazhong Press Group while extending into numerous vertical fields such as e-commerce, services, and livelihood. **Big Data Connection Mode 1: Connecting Data Sources and Application Centers.** This con-

nection approach enables data management and data trading business models, among which data management and data services represent the most mature and prevalent business models currently. Therefore, media must construct their own small data centers and establish data thinking and awareness. However, not every media organization can fully build systems independently. Founder Electronics has constructed data centers for many years, fully considering the development trend of centralized data collection and storage, and comprehensively adopting cloud service models. For instance, we not only built the Xinhua News Agency big data analysis and processing platform but also provide professional data push services. The “central kitchen” system of Xi’an Newspaper Media Group that we participated in constructing adopts a cloud service model for big data, significantly reducing hardware investment and operational costs while achieving instant deployment, enabling Xi’an Newspaper Media Group’s business processes to rapidly acquire big data capabilities.

## 2. The “Hard Power” of Media Convergence Innovation: Technology-Driven

Alongside technological development, converged reporting, interactive pages, content productization, and scenario-based immersive experiences represented by VR technology all demonstrate the essential “hard power” of media convergence innovation—technology. The application of big data technology in media has become a trend, making news production more intelligent and serving as the prerequisite and foundation for new media operation and management. It also enables traditional media to transform toward information services, fulfilling roles as public opinion guides and local service providers. Building media data assets and their application represents a crucial factor in achieving the integration of operations and industry. Regional newspapers that can both adhere to “localism” and pursue “depth” become grounded service platforms that serve and integrate into daily life. This represents the transformation from content operation to operating content through intensive cultivation of the newspaper industry. Founder Electronics has traversed a decade-long path promoting media convergence, with over ten years of technical accumulation in big data, participation in multiple national-level projects and research topics, and nearly one hundred big data patents. Founder Media Big Data provides two-level database support encompassing media circles and broad domains, supplemented by artificial intelligence, employing an open platform architecture that supports elastically selectable service models and aligns with user application scenarios, partnering with media to inaugurate the era of smart media. **Big Data Connection Mode 2: Connecting Data and Value.** This connection generates business models for data relationship mining and accumulated value utilization. Relationship mining represents the current mainstream big data business model and the primary application method of data science, discovering hidden correlations through data to achieve business guidance, precise services, and decision-making services. Accumulated value utilization revitalizes data assets to derive valuable conclusions, representing an important manifestation

of big data technical capabilities. These applications have already emerged in multiple projects. For instance, Langfang Daily, Modern Express, and Liaoshen Evening News—due to their strong ground promotion capabilities in business departments—prioritize customer integration and precision event marketing to achieve customer sharing and migration, strengthen customer stickiness management, and enhance customer conversion rates. Additionally, platforms like Xinrui Dazhong and Mei Xi'an start from the client side, strengthening the combination of user analysis and content to provide precise communication and enhance new media promotion and operation. **Big Data Connection Mode 3: Connecting Demand and Supply.** In this model, data serves as an intermediary connecting various nodes in the network, where individuals as network nodes can connect through data. Big data can facilitate communication among individuals in the network, thereby effectively reducing connection costs between demand and supply. Founder Changying Media Big Data supports the entire business process from planning, gathering, editing, distribution, transmission, evaluation, assessment, to operation, achieving business circulation. Founder Electronics provides data service support for hundreds of media units under media convergence construction, enabling assisted content production, precise user reach, personalized real-time interaction, and data-driven effect evaluation.

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

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