Research on Big Data Application Technology Based on Internet Converged Media (Postprint)

Authors: Zhou Xiao

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Abstract

Against the backdrop of the large-scale development of Internet-based integrated media, various integrated media organizations extensively utilize big data technology to update their working methods. The application of big data in Internet-based integrated media mostly lags behind the development of big data technology itself. In terms of underlying databases and platform management, there are few instances of integrated media proactively transforming to adapt to new big data technologies. With the implementation of policies promoting integrated media development and encouraging big data applications, the integrated media industry has generally increased its application of big data technology. However, what integrated media are willing to invest in are mostly big data application projects with lower costs and shorter profit cycles, while there is generally a lack of investment enthusiasm for big data application projects with higher talent requirements and longer profit cycles. The investment enthusiasm and R&D investment in big data technology by the integrated media industry exhibit relatively obvious differences compared with the application of big data technology in other industries. This paper primarily analyzes certain integrated media enterprises, exploring the current status and application directions of big data technology in integrated media enterprises, hoping to promote the rational application of big data technology in China' s Internet-based integrated media enterprises.

Full Text

Research on Big Data Application Technologies for Internet Converged Media

Author: Zhou Xiao
Institution: Broadcast Control Center of Hunan Radio and Television Station, Changsha, Hunan 410003

Abstract: In the era of large-scale development of internet converged media, various converged media organizations have widely employed big data technology to update their working methods. However, the application of big data in internet converged media mostly lags behind the development of big data technology itself. In terms of underlying databases and platform management for converged media, there have been few proactive transformations to adapt to new big data technologies. With the implementation of policies promoting converged media development and encouraging big data application, the converged media industry has generally increased its application of big data technology. Nevertheless, what converged media are willing to invest in are mostly low-cost, short-profit-cycle big data application projects, while there is generally a lack of investment enthusiasm for projects that require high-level talent and have long profit cycles.

The investment enthusiasm and R&D commitment to big data technology by the converged media industry show significant differences compared with the application of big data technology in other industries. This paper primarily analyzes selected converged media enterprises to investigate the current status and direction of big data technology application, hoping to promote the rational application of big data technology in China' s internet converged media enterprises.

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Introduction

Traditional media primarily relied on conventional channels for mass communication, building public trust and influence through long-term content dissemination using traditional media and technical means. With the exponential improvement in real-time network speeds and the continuous upgrading of internet terminal devices, the media industry has ushered in unprecedented opportunities for high-speed development. Against this backdrop, every internet user can become a media content producer, marking the arrival of the converged media era. The converged media era is characterized by diversified media subjects, multi-channel production, and real-time content delivery, which have led to a quantitative explosion of media content compared with the traditional media era. Massive amounts of media information now flood internet platforms, and

people no longer face a shortage of media resources but rather the challenge of reasonably filtering these resources. All converged media enterprises release large volumes of content to compete for audience attention, and whether they are traditional official media, private print media, or internet media, they must actively reform, skillfully apply big data technology, expand revenue channels, and enlarge their user base in this fierce market competition [1].

1. Historical Evolution of Big Data Technology Application in Internet Converged Media Industry

1.1 Policy Background and Industry Context

As comprehensive deepening reform advances further, China' s media industry has encountered new opportunities for transformation. The state encourages and promotes cooperation between traditional media and internet media. In this intense competitive environment, media shoulder the important mission of expressing national culture and demonstrating national soft power, as well as the special mission of expressing regional culture and promoting regional cultural development. With the exponential improvement in real-time network speeds and the continuous upgrading of internet terminal devices, the media industry has embraced high-speed development opportunities. In the internet context, every user can become a media content producer, bringing about the converged media era characterized by diversified subjects, multi-channel production, and real-time content. These features have caused media content to increase by orders of magnitude compared with the traditional media era. Massive amounts of media information now saturate internet platforms, and people face not a scarcity of media resources but the dilemma of how to reasonably filter them. All converged media enterprises release substantial content to compete for audience attention, and whether traditional official media, private print media, or internet media, they must actively reform, master big data technology, expand profit channels, and grow their user base in this brutal market competition.

1.2 Pilot Applications in the Industry

In the development process of converged media in China, a tripartite competitive structure has gradually formed among central official media, local official media, and private media. Pilot programs for converged media development have primarily focused on local official media, which have actively integrated media operations with big data technology to develop big data application media industries, laying a foundation for the widespread promotion of big data technology. Table 1 provides a statistical list of selected local official media that enjoy State Council news relay source status. By the end of 2020, nearly 60 local official media had become enterprises capable of providing news to the State Council. These enterprises all possess relatively outstanding business capabilities and have deeply applied big data technology, with some companies' big data project departments generating considerable profits and creating

sustained economic value for their enterprises. Table 2 presents the business performance records of selected small and medium-sized internet converged media enterprises as of the end of 2020, documenting their profitability levels in the big data industry [2].

2. Current Status and Characteristics of Big Data Application

2.1 Performance of Small and Medium-Sized Enterprises

The business performance records of selected small and medium-sized internet converged media enterprises—shown in Table 2 —reveal four main business areas: information consulting, advertising, media sales, and data services. Since big data business currently falls outside the main business scope of converged media enterprises and does not occupy their primary management focus, relevant corporate operating data cannot directly reflect profits generated by big data technology application. Therefore, the author can only categorize big data business revenue within data business revenue. By observing data business revenue, it becomes evident that revenue levels from data business are continuously increasing over time. Accordingly, one can conclude that converged media enterprises will increase capital investment in big data application business in the future and will raise the proportion of big data business within their operations as profit shares change.

2.2 Application Characteristics of Big Data in Converged Media

According to industry research on big data, converged media enterprises actively explore big data technology application with a focus on establishing corporate big data repositories. The widespread construction of big data repositories represents the main characteristic of current big data application in the converged media industry. Media enterprises integrate commercial information based on feedback from big data repositories to assist in media content production and meet diverse content demands from different groups. Many media enterprises have also separated big data business to provide specialized big data services to clients, using servers to collect and share massive amounts of commercial information and provide business reports.

The core of big data business lies in constructing big data repositories, which serve as the basis and source for media content production and the operational foundation for media enterprises. Big data repositories can help transform media enterprises' content production methods, making content production more industrialized and systematic. A unified big data operation platform can coordinate independent media operations across departments, helping enterprises achieve full-staff integration and promoting business capability enhancement [3].

3. Existing Problems in Big Data Application

3.1 Lack of Long-Term Mechanisms for Big Data Application

Current phased investigations and research show that most media enterprises lack long-term planning for big data business and do not intend to establish specialized big data departments to expand profit boundaries. Only a small number of enterprises have established dedicated big data business departments that have achieved certain results and increased profits. Another small subset of enterprises, while lacking specialized departments, do have long-term plans for big data business. Among the few enterprises that have launched big data business, most focus on short-term returns. Once investment becomes excessive or returns fall short of expectations for a period, enterprises tend to reduce investment in or even dismantle their big data departments. Big data technology application itself is highly complex. Although a small portion of technical applications can be implemented quickly, most require substantial time and capital investment. Once complex big data technology applications are realized, enterprises can significantly enhance their profitability. Therefore, enterprises should build big data repositories to improve long-term profitability.

3.2 Insufficient Investment in Big Data Application Technology

The profitability of big data business is key to most media enterprises' focus on enhancing big data technology application levels. If big data business lacks short-term profit potential, enterprises lose interest in expanding big data business. Against the converged media backdrop, most media enterprises invest in low-cost, short-profit-cycle big data applications. However, they generally lack willingness to invest in high-cost, long-profit-cycle big data application projects, lagging behind other less demanding projects. Many enterprises have neither the intention nor plans to undertake high-cost, long-cycle big data application projects. Most converged media enterprises also omit big data application from their annual investment plans and allocate no budget for building fundamental big data databases. While insufficient investment in big data application technology does not create competitive disadvantages in the short term—and may even increase profits by avoiding cost increases—such short-term profit gains ultimately undermine long-term competitiveness.

3.3 Inadequate Revenue from Big Data Business

Statistical data reveal that most converged media enterprises do not regard big data business revenue as their primary profit source, and big data business operations do not occupy a dominant position in these enterprises. Big data business has not even become important enough to be listed in corporate income statements, fully demonstrating that big data business accounts for too small a proportion of total business revenue in converged media enterprises and indicating relatively low utilization of big data technology in the converged media industry.

4. Reform Recommendations for Big Data Technology Application in Internet Converged Media

4.1 Leveraging Big Data Technology to Expand Media Content

Big data technology can assist media enterprises in content production. Using big data technology, converged media platforms can collect vast amounts of network information and trending topics to compile, edit, and create new media content, while also using big data technology for content dissemination. Many media enterprises have begun using big data technology to facilitate content production, treating big data repositories as their primary material libraries for content editing.

4.2 Leveraging Big Data Technology to Improve Media Operations

Big data technology can reform converged media business models to facilitate product production and dissemination. Big data technology can deliver specific information aligned with users' browsing preferences, reconstructing information content from a customer-centric perspective and disseminating customized media content targeted at specific clients. This improves conversion efficiency of commercial advertising in media operations, enhances customer acceptance of and loyalty to converged media enterprises, and achieves improved corporate profitability [4].

4.3 Leveraging Big Data Technology to Serve the Public

Converged media enterprises are both profit-oriented business entities and public service providers, with their products possessing special public nature.

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