Application of Big Data and Converged Media Technology in Broadcasting: Postprint

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Abstract

For the traditional media industry, broadcasting and television constitute its most representative sectors. Owing to their vast user base and pronounced industry advantages, they have long occupied a leadership position in the field. With societal development and the continuous advancement of information technology, big data and converged media technology, as emerging technologies of the era, have been extensively applied across various industries, thereby exerting considerable impact on the traditional broadcasting and television sectors. From the perspective of broadcasting and television development, in the current context of rapid information technology evolution, it is imperative to continuously explore big data and converged media technology and integrate them with traditional broadcasting and television industries to align with the characteristics of the contemporary era characterized by rapid information technology development.

Full Text

Abstract

For the traditional media industry, broadcasting and television represent its most emblematic sectors. Due to their vast user base and distinct industry advantages, they have long maintained a leadership position. However, as society develops and information technology continues to evolve, big data and converged media technology—emerging technologies of our era—have been widely applied across various industries, significantly impacting traditional radio and television. From the perspective of broadcasting and television development, it is essential to continuously explore big data and converged media technologies and integrate them with traditional broadcasting and television to align with the rapid development of contemporary information technology.

Keywords: big data; converged media; broadcasting and television; application and prospects

1.1 Declining Revenue Growth

Overall, revenue in the broadcasting and television industry continues to grow, but its growth rate has been declining year after year. On one hand, the democratization and widespread application of new media technologies have significantly impacted broadcasting and television, diminishing the influence of traditional radio and television. On the other hand, the advent of the big data era and the increasing use of converged media technology in daily life have led to pessimistic outlooks on the future development of broadcasting and television across various sectors, directly affecting advertising volume in the industry. Since advertising represents the primary revenue source for broadcasting and television, reduced placement has substantially impacted industry income, triggering a chain reaction: decreased staff motivation, reduced technological innovation, outdated content, and other negative consequences for the industry. Data shows that the growth rate of broadcasting and television revenue has fallen below 10%, a dangerous trend primarily attributable to the year-by-year decline in advertising placements. Meanwhile, online revenue has grown rapidly, with high-speed information technology development creating new opportunities for online media and increasing its societal influence. Consequently, advertising placements in online media have been growing annually at a rapid pace.

1.2 Recovery in Radio Listening Volume

Radio has undergone a lengthy development process since its early emergence, serving as an industry leader for an extended period when media transmission methods were limited and newspapers and radio dominated the market. With scientific and technological advancement, television emerged and became affordable for most households, significantly impacting the radio industry during that period. However, in recent years, the popularization of automobiles has led to a modest increase in radio listening volume. The expanding audience for radio content has resulted in a growing number of listeners, driving an overall upward trend in radio listening. Simultaneously, as big data and converged media technologies have been increasingly applied in the media industry, online media has developed rapidly, with online radio listening volume growing annually. Unconstrained by geographic boundaries, most programs can be accessed anytime, offering online radio tremendous advantages and giving listeners full program selection rights. This has captured a substantial portion of the radio listening market, posing considerable challenges to traditional radio. Due to these new-era development characteristics, online radio has integrated text reading functionality alongside listening capabilities, attracting an increasingly large audience and building a massive user base. In response, traditional radio is undergoing reform and gradually recognizing the importance of new media technologies by progressively implementing big data and converged me-

dia technologies internally to align with new-era media industry development characteristics, increase radio listening volume, and expand audience groups.

1.3 Overall Decline in Television Viewing Volume

With the discontinuation of analog signals across provinces, cable television installations have increased year by year. Data shows that by the end of June 2018, cable TV installations in China had reached 234 million. However, observation of user TV viewing time data reveals a clear year-by-year decline in viewing duration, with the trend being quite pronounced. Current survey data indicates that TV viewing time is at a historic low. In this severe situation, competition within the television industry remains intense, further impacting TV viewing volume. Traditional TV content suffers from limited duration and extensive advertising during program broadcasts, creating significant user dissatisfaction. Additionally, technological progress and network popularization have increased smartphone and tablet penetration rates. These emerging media devices allow users to download preferred programs or watch online within wireless network areas without location constraints, greatly facilitating TV program consumption. Furthermore, online video features fewer advertisements, making it increasingly popular among young people and gradually expanding its user base.

2. Application of Big Data and Converged Media Technology in Broadcasting and Television

2.1 Establishing New Communication Systems

To deeply reform the traditional broadcasting and television industry, the first step is establishing a new communication system. Through continuous industry exploration of big data and converged media technologies, a "Three Alls" communication system has been proposed as the foundation. The "Three Alls" refers to all-media, all-weather, and full coverage. This system can transform traditional information dissemination patterns, break through the constraints of conventional media, and create new opportunities for rapid broadcasting and television industry development in the new era. By constructing this new information communication system, broadcasting and television have achieved round-the-clock coverage, forming new service models with an expanding audience reach. Currently, the industry has launched numerous WeChat public accounts for broadcasting and television, supplemented by traditional reading methods, significantly enhancing industry influence, leveraging the advantages of big data and converged media technologies, and accelerating the integration process between new and traditional media.

It is important to note that converged media platforms are built upon big data technology. Therefore, technological development direction should serve as the primary guiding principle, establishing technology' s dominant position in platform construction to promote integration between new technologies and content,

thereby creating advanced converged media platforms with regional characteristics. Using data sharing and visualization as the foundation for information transmission can enhance reporting persuasiveness while effectively guiding public opinion, promoting rapid improvement in effectiveness. Taking "Two Sessions" coverage as an example, broadcasting and television industries and relevant organizations established all-media reporting teams, added WeChat interaction zones to programs to improve government-citizen relations, and better facilitate interaction between guests and audiences or netizens. Adding graphic interpretation sections behind media reports greatly enhanced information expressiveness, effectively improving program quality, increasing TV viewing volume, and raising media penetration and influence.

2.2 Building Multi-dimensional Converged Media Based on Big Data and Converged Media Technology

Under current social conditions with continuously developing information technology, big data and converged media technologies are also evolving and being applied across various industries due to their numerous advantages. Through comprehensive technology application, industry barriers have been effectively broken, combining traditional broadcasting and television with new technologies to promote all-around integration of media operations and broadcasting content. When integrating broadcasting, television, and online media projects, attention should be paid to incorporating "two micros and one end" (WeChat, Weibo, and news client apps) new media social platforms, utilizing their network characteristics to accelerate interconnection and facilitate overall content control. Websites, Weibo, WeChat, and computer and mobile ports can all serve as platforms for sending and receiving information content. Through the joint action of various media channels, comprehensive integration can be achieved, fully leveraging their capacity and characteristics to enhance online-offline interaction and achieve cross-project integration.

Simultaneously, we must optimize program production processes according to converged media technology characteristics and build a work system with integrated front ends and diversified terminal broadcasting. This approach not only strengthens media influence but also avoids serious program homogenization, thereby enhancing audience or listener interest. During the application of big data and converged media technologies, modern new media matrices have been constructed based on their application characteristics, achieving mutual integration between traditional and new media while enhancing media innovation to better promote the development of their integration process. With clear positioning and distinctive application features, new media matrices can serve both as a media innovation method and achieve full coverage. For the broadcasting and television industry in the new era, WeChat, Weibo, and other information platforms should be fully utilized to push program information and related news to users, promoting user growth.

2.3 Actively Building Converged Media and Integrated Platforms with Local Characteristics

In the new era, new network technologies should be fully utilized to create broadcasting and television platform products that align with local characteristics. By actively exploring relevant technologies and improving the operation models of mobile client applications, more user-growth processes can be designed according to local features, making service platforms more accessible and acceptable to the general public. This manifests in two aspects: First, on the foundation of preserving traditional media advantages, broadcasting and television resources should be integrated through converged media and big data technologies. For example, interactive videos and audio can be provided with on-demand functions for audiences or listeners, supplemented with more graphic information and current affairs hotspots. Second, traditional media barriers must be broken by integrating third-party resources with traditional media resources, enriching content while providing more services to enhance broadcasting and television influence. For instance, bus information, real-time traffic conditions, and weather updates can be sent to users through various information channels, greatly facilitating daily life. Additionally, we must build modern integrated platforms that combine publicity and operations based on improving social benefits, promoting further integration of publicity content between traditional and new media to broaden the influence of this new broadcasting and television business form.

3. Development Prospects of Big Data and Converged Media Technology in Broadcasting and Television

With the arrival of the information age, network technology continues to update, enabling people to communicate with others anytime and anywhere without spatial or temporal constraints. Simultaneously, due to improvements and refinements in data technology, people can achieve large-scale, long-distance, rapid data transmission. These conveniences brought by data technology development are also necessary means for promoting rapid social development. In this process, people have gradually recognized the importance of big data and converged media technologies, especially for the broadcasting and television industry. The advanced concepts and technological improvement methods in these new technologies can integrate traditional and new media, achieve data sharing, and provide important guidance for future broadcasting and television industry development. Continuous innovation and improvement of these two technological approaches can both leverage the characteristics of big data and converged media technologies and expand the application scope of technological industries while promoting sustainable development of the broadcasting and television industry.

3.1 Application Prospects of Big Data Technology in Broadcasting and Television

For information collection and analysis, the primary function of big data technology is organizing massive amounts of information. After data organization, further optimization analysis should be conducted through cloud computing, enabling data storage while effectively improving technology application methods. Previously, data storage volume was typically measured in terabytes (TB). However, the extensive application of big data technology in the media industry has resulted in massive data increases, making petabytes (PB) or exabytes (EB) the current storage units. This precisely demonstrates that big data technology is being increasingly applied in actual workflows.

3.2 Application Prospects of Converged Media Technology in Broadcasting and Television

Fundamentally, converged media technology is a technical approach that optimizes and integrates multiple media information forms, playing an important role in promoting broadcasting and television industry development. It is important to note that converged media does not represent a single media form but rather multiple media forms integrated through in-depth analysis of network characteristics and media information transmission methods. Converged media typically exists as a unit within the industry, and due to its technological advantages in broadcasting and television, it can simultaneously serve multiple projects. Compared with single media, converged media offers price advantages while better meeting customer needs, thereby enhancing customer satisfaction.

References

[1] Jia Dai, Cheng Qian. Exploration of Big Data and Converged Media Technology Applications and Prospects in Broadcasting and Television[J]. Science and Technology Communication, 2018, 10(1): 74-75, 118.

[2] Li Chuan. Building Broadcasting and Television Converged Media Big Data Centers to Promote Media Convergence Transformation and Upgrading of City Stations[J]. Modern Television Technology, 2017(5): 105-109.

[3] Li Zhengyun, Ye Lingli, Xiang Zhen, et al. Design of Television Station Digital Broadcasting Control System in Converged Media Environment[J]. Television Technology, 2017, 41(7): 79-86.

[4] Zou Yangyang, Wang Chun. Converged Media Era: Copyright Core Value Development Based on Data Management[J]. Radio & TV Journal, 2018(1): 5-6.

[5] Zhou Xiaoxuan. Traditional Broadcasting and Television Media Should Strengthen Top-level Design[J]. Vitality, 2017(7): 54.

[6] Zhang Xiaoyu, Yao Gaoyuan, Liu Jiexin, et al. Discussion on Data Application and Technical Support in Broadcasting and Television Business[J]. Modern Television Technology, 2016(5): 70-73.

[7] Gu Hong. Platform Strategy for Integrated Development of Broadcasting and Television Industry and Emerging Media[J]. Jinan Journal (Philosophy and Social Sciences Edition), 2014(9): 153-159.

[8] Cheng Chen, Li Ningbin, Wang Weicheng, et al. Suzhou Broadcasting and Television Station New Building Independently Designed Converged Media Interactive Studio Group (Part 1)[J]. Modern Television Technology, 2017(10): 94-97.

[9] Cai Hongwu. Application and Practice of Big Data in Broadcasting and Television Converged Media Cloud Platform Content Library[J]. Radio & Television Information, 2018(10): 65-69.

[10] Yang Jing. Crossover, Convergence, and Innovation of Broadcasting and Television Media in the Internet Era[J]. China Radio, 2017(3): 11-13.

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