Postprint of the Application of Network Technology in Converged Media Broadcasting Engineering Technology

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Abstract

With the continuous development of science and technology, information technology has been increasingly applied across various fields, bringing tremendous convenience to both production and daily life. Traditionally, people primarily obtained public opinion information through radio and television, which occupied a substantial market position. However, as the era advances and technological innovation continues, the emergence of network technology has posed severe challenges to the traditional radio and television industry. To keep pace with the times and maintain its market position, the full integration of network technology with converged media broadcasting engineering technology is imperative. This paper primarily investigates effective application strategies for network technology within converged media broadcasting engineering technology, aiming to promote the further development of the converged media broadcasting engineering industry.

Full Text

Application of Network Technology in Converged Media Broadcasting Engineering Technology

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Abstract: With the continuous development of science and technology, information technology has been increasingly applied across various fields, bringing tremendous convenience to people's production and daily lives. In the past, people primarily obtained public opinion information through radio and television, which occupied a dominant market position. However, as the times progress and technology continues to innovate, the emergence of network technology has posed a serious challenge to the traditional broadcasting industry. To keep

pace with the times and maintain its market position, the full integration of network technology with converged media broadcasting engineering technology is imperative. This paper explores effective application strategies for network technology in converged media broadcasting engineering, aiming to promote further development of the converged media broadcasting industry.

Keywords: network technology; converged media broadcasting engineering; traditional broadcasting; new media convergence; application strategies

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1.1 Slow Development

The emergence of network technology represents an epoch-making significance and holds important value in promoting overall human development. Consequently, countries worldwide are placing increasing emphasis on the effective application of network technology across various domains during its research and development. Particularly in the new era, the advantages of network technology have become increasingly prominent, and applying advanced network technology to broadcasting engineering has opened new doors for the broadcasting industry. As information technology continues to evolve and internet technology advances with each passing day, traditional industries must fully integrate with internet technology to keep pace with the times. Internet technology can effectively collect various types of information, enabling broadcasting engineering to better analyze audience needs through collected data and subsequently make improvements. The rise of new media has provided the general public with new channels for accessing data and information, offering strong interactivity and meeting user needs in terms of both content and promotion. This has significantly impacted traditional broadcasting, making the strengthening of network technology application in converged media broadcasting engineering crucial for promoting its further development.

1.2 Constraints on Traditional Broadcasting Development

As technology advances, people's lifestyles and thinking patterns have undergone tremendous changes. In daily life, receiving various social information through mobile devices has become mainstream, while traditional radio and television have gradually detached from people' s lives due to outdated technology and terminal equipment. Many people no longer listen to radio broadcasts, with most turning to online platforms instead. The internet breaks temporal and spatial constraints, allowing audiences to access broadcast information anytime and anywhere. Moreover, users can download and save their favorite content and share it with friends through information transmission, effectively promoting

interpersonal communication. Therefore, network technology has become more deeply integrated into people' s lives, greatly satisfying customer needs. In contrast, traditional broadcasting' s single broadcast format has caused many listeners to abandon it in favor of the more diverse online alternatives. To survive, traditional radio and television must strengthen effective integration with the internet, achieve diversified broadcast formats, and meet the needs of contemporary audiences to improve ratings and maintain market position.

1.3 Impact on the Television Industry

The emergence of internet technology has driven the rise of many emerging industries, such as the new media sector, which has gained widespread public recognition under internet influence. This has posed a significant challenge to traditional radio and television, severely affecting their development. As new technologies continue to improve, the broadcasting media industry will inevitably be eliminated by the market if it fails to innovate. Many advertising companies now collaborate with new media industries to improve promotional efficiency, causing traditional broadcasting to lose sponsorship support and undermining its sustainable development. As the new media industry continues to grow, its market share increases while traditional broadcasting' s share decreases. Therefore, the broadcasting industry must undergo internal transformation to keep pace with the times, gain public support, and rejuvenate itself [1].

In the early stages of television development, it brought rich and interesting entertainment to people' s lives. However, as times change and science and technology continue to innovate, the integration of internet technology has profoundly impacted the traditional television industry. Although many users still install cable television to meet their daily entertainment needs, an increasing number of young people now watch television online. The emergence of internet television has significantly affected viewership ratings across major TV stations, while broadcast time constraints have severely weakened television' s influence. The application of network technology in television allows the general public to watch desired content anytime and anywhere, skip advertisements, and access a wealth of information through the internet as long as they have wireless networks, WiFi, and smart terminals. This offers tremendous convenience, richer content, and satisfies personalized needs. Data surveys show that internet television click rates are increasing year by year, with most young people preferring online television. This demonstrates that internet television will comprehensively surpass traditional television in the future, and without updates and changes, traditional television will eventually be eliminated by society.

2.1 Optimizing Service Platforms Through the Internet

In traditional radio and television, people could only obtain information through broadcast stations, which greatly limited their access channels. With the development of the media industry, people can now collect various information through the internet and mobile terminals, making the traditional single model

unable to meet current demands. The full integration of internet technology with traditional radio and television has effectively developed converged media broadcasting engineering technology. Media information can be incorporated into the internet and WeChat platforms through big data, making information resources more widely accessible. Audiences can obtain information through various channels, greatly expanding the service scope of broadcasting engineering. As internet technology and broadcasting integration deepens, broadcast stations have begun developing their own converged media platforms, connecting network technology with mobile terminals so that audiences can watch various radio and television programs through smartphones. Many stations have also developed their own applications—for example, Zhejiang Satellite TV developed the "China Blue" app, while Hunan Satellite TV launched "Mango TV" —allowing audiences to download software on computers or mobile terminals and watch programs from major satellite TVs anytime. This demonstrates that internet integration has expanded broadcasting' s service range and market space, playing a significant role in promoting its future development.

2.2 More Convenient Data Collection

In traditional radio and television, user information collection methods were relatively singular, making it impossible to push targeted information according to audience needs. This limitation, combined with the lack of interactive communication between broadcasters and audiences, severely hindered industry development. Integrating internet technology into radio and television has effectively enhanced converged media broadcasting engineering technology, particularly in improving data collection efficiency. By combining internet technology with information resources from online platforms such as Weibo and forums, and analyzing collected data through big data technology, broadcasters can extract value, summarize actual audience needs, and improve program production and adjustment to effectively increase ratings [2].

Moreover, network monitoring devices can track various information data in real time, simplifying data collection. Network technology can effectively collect diverse data formats including videos and images, greatly enriching data resources. Cloud services can securely store information, improving data security. Thus, the application of network technology in broadcasting engineering has further enhanced development efficiency.

2.3 Optimizing Data Processing

In traditional radio and television, data processing was slow and consumed substantial human and material resources, resulting in low efficiency. As information data continues to increase with time, this has placed tremendous pressure on staff. Internet technology enables efficient organization of collected data through cloud computing and big data technology, optimizing repetitive information and extracting the most valuable data, which plays a crucial role in promoting broadcasting industry development. After processing, audiences can

search for various information through keyword retrieval, greatly satisfying their information needs. Furthermore, internet technology allows for real-time modification and integration of information, making information data management in converged media broadcasting engineering more efficient.

Additionally, internet technology integration has effectively improved data analysis and organization efficiency, continuously enhancing utilization rates. Advanced information technology can effectively integrate collected data, generate data reports, and present them to staff in chart form, enabling clearer visualization of data changes and providing a solid foundation for future development decisions in broadcasting.

2.4 Optimizing Service Quality

The effective integration of network technology with radio and television can strengthen interaction between stations and audiences, helping broadcasters understand user needs. Based on these needs, broadcasters can provide precise push notifications and personalized services, greatly improving service efficiency and quality, thereby promoting further development and market dominance [3]. The broadcasting industry can analyze users' viewing records in detail through computer technology—for instance, effectively reviewing viewing histories in apps like "China Blue" and "Mango TV" to identify preferred program types. Users can also label their preferences within these apps, feeding their interests back to broadcasters. The network control center can then provide intelligent push notifications based on actual user needs. This demonstrates that network technology not only improves information data processing efficiency but also enables more intelligent and automated network management, effectively enhancing audience service experiences and further improving ratings.

Moreover, network technology can accurately determine advertising placement timing, and reasonable advertising integration can effectively increase broadcasting industry economic benefits. The continuous integration of internet and broadcasting has expanded service scope, resulting in a constant stream of diverse programs that effectively enhance broadcasting service functions. For example, internet television can facilitate e-commerce sales, effectively promote products, and integrate television programs with games for effective game promotion, improving information dissemination efficiency. Thus, the integration of converged media broadcasting engineering technology with internet technology can form good interaction with audiences, provide more data information, satisfy audience needs, and significantly improve ratings.

3.1 Continuous Development of Network Technology

The continuous development of network technology will drive further advancement in the radio and television industry. Network technology primarily integrates advanced information technology, internet technology, cloud computing, and big data to effectively collect, organize, and analyze data information, es-

tablishing vast database resources and continuously optimizing various broadcasting fields to enable more scientific and rational data utilization. Unlike traditional single-mode data application, internet technology enables diversified data utilization and technological innovation, effectively developing data value [4]. Network technology can increase data volume to PB levels or higher. Furthermore, data types show a trend toward diversification—for example, data can be collected through web pages, software, and gaming platforms, then scientifically analyzed to fully manifest their value and provide an effective data foundation for broadcasting industry development. This offers important support for leadership decision-making, effectively improving information processing efficiency in broadcasting engineering and promoting better broadcasting development.

3.2 Future Development of Converged Media Technology

With the continuous development of information technology, converged media technology has emerged, primarily using the effective combination of different media to improve comprehensive data information integration efficiency. This diversifies broadcast formats and greatly satisfies contemporary audiences' daily needs. In the development of broadcasting engineering, the effective integration of internet and converged media technology has continuously improved radio and television ratings, while diversified broadcast formats have greatly satisfied audiences' personalized needs, holding extremely important significance and value for promoting future broadcasting development [5].

Currently, Luoyang Radio and Television Station has integrated internet technology and converged media technology. In daily operations, besides live television broadcasting, the station also conducts real-time live streaming through mobile platforms and other network platforms such as the "Lao Jia News" WeChat public account and "Wireless Luoyang" app. This diversified broadcasting format allows the general public to browse and watch live streams on various platforms. Data shows that multi-format broadcasting achieves extremely high click rates, with online audiences reaching over 100,000 viewers. For special programs of large-scale events, online clicks can even exceed millions or tens of millions. This demonstrates that with the development of the times, the effective integration of information technology with converged media broadcasting engineering will be more favored by audiences. The rich broadcast methods displayed after integration fill broadcasting engineering development with contemporary characteristics and features, fully satisfying public needs. Converged media development does not proceed independently but requires full integration with broadcasting engineering technology and internet technology—only through such integration can mutual promotion and common development be achieved.

In conclusion, with the arrival of the information age, internet technology has played an extremely important role across various fields. Through effective integration with converged media broadcasting engineering technology, the converged media broadcasting industry has achieved further development. Net-

work technology enables continuous optimization of converged media broadcasting engineering, such as establishing data analysis platforms that use big data and cloud computing to collect, analyze, and organize data, thereby effectively improving data management efficiency and quality. Simultaneously, network technology application enables personalized services for audiences, effectively improving service quality, enhancing market competitiveness, and holding important significance and value for converged media broadcasting engineering development.

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