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Postprint: Exploring Network Technology and Networking Development Directions for Radio Station Production and Broadcasting

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Abstract

As network technology continues to develop in China, people's lives have undergone tremendous transformation, and all industries have achieved rapid development through the application of network technology. Network technology has exerted a substantial promoting effect on radio broadcasting production, resulting in certain improvements in the quality and efficiency of radio program production. Radio broadcasting production and transmission technologies should therefore be continuously enhanced.

Full Text

Preamble

Journal: ChinaXiv Cooperative Journal *Media Technology · Media Industry*

Title: Exploring Network Technology and Network-Oriented Development Directions for Radio Production and Broadcasting

Abstract: With the continuous development of network technology in China, people's lives have undergone tremendous changes, and all industries have achieved rapid advancement under the application of network technology. Network technology has played a significant role in promoting radio production work, improving both the quality and efficiency of radio program production. Radio production and broadcasting technologies should continue to advance accordingly.

Keywords: radio production and broadcasting; network technology; program positioning; technical analysis; transmission technology

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In recent years, China's radio production and broadcasting has achieved certain results in its transition toward network orientation. The introduction of various network devices has optimized every aspect of radio production and broadcasting, from program preparation and recording to storage and transmission. Network technology has made radio production and broadcasting work simpler and more efficient while also improving program quality. Therefore, to continuously enhance the quality of radio programs, we should strengthen research and analysis on the application of network technology in radio production and broadcasting, advance the networking of program production, and improve technical standards.

1.1 Current Status of Radio Production and Broadcasting

Many years ago, network technology was already applied in radio production and broadcasting, replacing traditional manual coordination workflows. As China's network technology continues to upgrade, radio production and broadcasting has gradually moved toward full networking, making program production processes simpler and more convenient. At the current stage, the development of network technology has also expanded the reach of radio programs to some extent.

As living standards improve, people increasingly prioritize their spiritual and cultural needs. To meet these demands, radio stations must enhance their program quality and produce high-quality radio programs aligned with contemporary development trends. This requires radio stations to deepen their network technology capabilities and leverage the influence of network technology in program production. Additionally, since China's current level of networking in radio production and broadcasting remains relatively low with many shortcomings, we should continuously improve relevant technologies and adjust work models during network technology application to effectively enhance program quality.

1.2 Characteristics of Radio Production and Broadcasting

Radio production and broadcasting primarily exhibits three characteristics: real-time efficiency, operational controllability, and resource sharing. These three features constitute the core advantages of radio programs and serve as the main attractions for listeners.

First, **real-time efficiency**. Radio program content has strong timeliness, making it more likely to capture audience interest compared to outdated information and exerting a positive influence on listeners. Network technology itself possesses real-time capabilities, and increasing its application in radio program production and broadcasting helps enhance program timeliness.

Second, **operational controllability**. During the production and broadcasting process, programs can be monitored in real time, allowing for timely improvements when issues arise, thereby ensuring program quality and content reliability.

Third, **resource sharing**. At the current stage, network technology application in radio production and broadcasting enables resource collection and sharing across the internet and various network devices. Moreover, network technology has successfully freed radio programs from previous time and space constraints, allowing people to listen anytime and anywhere and review past programs.

2.1 Program Positioning Technology Analysis

As society evolves, people's entertainment options have become complex and diverse. Since younger audiences increasingly prefer new media content, the demographic structure of radio listeners in China has changed. Currently, radio audiences primarily consist of rural populations, drivers, and older urban residents. To better satisfy these groups, staff should fully utilize network technology for program positioning, clearly understanding the real needs of their audience to develop appropriate radio programs.

2.2 Program Source Storage Technology Analysis

Currently, program information storage methods are mainly divided into three types: local storage, near-line storage, and offline storage. Local storage offers advantages of convenience and large capacity; near-line storage primarily relies on tape drives and optical disc towers for data preservation; while offline storage offers portability and anytime-anywhere storage advantages, such as USB drives and optical discs.

2.3 Information Source Collection and Recording Technology Analysis

Radio program production and broadcasting primarily utilizes analog and digital methods for information source collection. During collection, relevant equipment can be used for information gathering. Currently, commonly used devices include recorders and interview machines. Data is then transmitted through fiber optic and wireless communication equipment. With scientific and technological development, there are few limitations on information formats, which facilitates the preservation of first-hand information.

2.4 Program Compilation Technology Analysis

Program compilation technology primarily involves producing programs and editing their content. With the development of internet technology, staff can increasingly conveniently collect information online, then process and edit it using relevant information processing technologies to produce programs that meet

requirements. Program compilation is a crucial workflow in radio production and broadcasting, significantly impacting program quality.

2.5 Broadcasting and Distribution Technology Analysis

Broadcasting and distribution technology involves broadcasting radio programs through appropriate network technology. During broadcasting and distribution, all program broadcasting centers on audio servers. Currently, the main broadcasting forms are live broadcast and rebroadcast. Staff can use timed, fixed-point, continuous, and manual methods for program broadcasting.

Fixed-point broadcasting requires staff to predetermine broadcast times and play programs accordingly, with wide application in rebroadcasting, announcements, and previews. Continuous broadcasting also requires preset broadcasting formats to enable automatic sequential playback, primarily used when broadcasting large volumes of programs. Manual broadcasting offers immediacy without requiring preset configurations—hosts simply perform manual operations during broadcasting—commonly used in live programs.

2.6 Audio Program Transmission Technology Analysis

Since radio programs have certain restrictions on audio data formats, format conversion must be properly handled during program production. Conversion technology can transform audio formats into those required by radio stations and can also enable conversion between analog and digital audio. After conversion, storage and transmission efficiency for program audio can be improved, and signal switching for audio programs can be facilitated.

3. Network-Oriented Development Trends in Radio Production and Broadcasting

As China's network technology continues to develop, radio stations must continuously deepen the application of network technology in program production to advance the networking level of program production and broadcasting.

3.1 Development Toward Program Content Informatization

With improving living standards, people's spiritual demands are growing higher. At present, China's cultural forms are gradually diversifying. To improve radio program quality and meet rising spiritual needs, radio stations must enhance their multimedia technology development, conduct market research on current radio programs, and understand audience listening needs and habits to design better programs. During program production, staff should also avoid program duplication, strengthen integration of program information, establish a sound information resource utilization management system, and improve program content originality to make radio programs more personalized, distinctive, and unique.

3.2 Development Toward Service Modernization

Currently, competition is fierce across all industries in China, and product homogenization is widespread, with audiences demanding increasingly higher quality from radio programs. Therefore, during program broadcasting, methods such as paid on-demand services can be adopted to meet different listeners' needs, allowing audiences to select relevant programs according to their preferences. This can improve program ratings to some extent and strengthen the collection and organization of audience listening habits to make radio programs better meet audience needs.

3.3 Development Toward Technology Modernization

As various technologies continue to upgrade, current radio production technologies cannot meet future program production and broadcasting needs. Therefore, future radio production technologies will develop toward digital technology, using digital technology to realize production, management, and operation of all program information content. To better improve data processing capabilities, radio stations also need to adopt "cloud computing" models for data processing to enhance work efficiency and quality. With the transformation of China's broadcasting industry, radio stations must change their current two-tier architecture production systems to multi-tier architecture production systems to ensure program quality and secure their viability in the face of contemporary challenges.

The application of network technology in radio production and broadcasting promotes program production efficiency and influences program content, transforming the singular broadcasting forms and resource storage methods of radio programs. To continuously promote the development of radio programs and ensure networking and modernization, radio programs should develop toward continuously improving network technology, diversifying program content, and providing higher-quality services in the coming period.

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