Research on Strategies for Broadcasting Technology Development in the New Media Era: Postprint

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Abstract

Today, as society has fully entered the information age, modern new media technologies continue to evolve and gradually permeate the broadcast media sector. The debate over whether the influence of new media on traditional broadcast technology is detrimental or beneficial has long persisted. How broadcast technology should develop in the new media era represents a central focus of research in broadcast technology. This paper proposes development pathways and strategies through an analysis of the characteristics of broadcast technology in the new media era.

Full Text

Research on Development Strategies for Broadcast Technology in the New Media Era

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Abstract: In today's fully informatized era, modern new media technologies continue to develop and gradually penetrate the broadcast media field. The debate over whether new media's impact on traditional broadcast technology is harmful or beneficial has been ongoing. How broadcast technology should develop in the new media era has become the focal point of broadcast technology research. This paper analyzes the characteristics of broadcast technology in the new media era and proposes development pathways and strategies.

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In the new media era, the development of network technology has provided convenient living, transforming people's lifestyles and work patterns. This era has created development opportunities for broadcast technology while also presenting bottlenecks for the broadcast industry. To better adapt new media technology to serve people's lives, we must embrace an environment where new media is catching up and surpassing traditional media, utilize new media technology to provide high-quality services for people's lives and work, and simultaneously promote the healthy development of the broadcast industry.

1.1 Digital Technology

SDT (Security Data Technology), or security big data technology, overcomes the shortcomings of traditional transmission technologies—namely slow speed and insecurity. It maximally avoids frequency band conflicts in signal transmission, improves signal stability, and features low information loss and large capacity. This technology is applicable to fiber optic and microwave communications, meeting the needs of line transmission, multiplexing, and switching. When applied to broadcast signal transmission through digital processing, it offers advantages of flexible use, easy maintenance, and reduced maintenance costs. Its application in broadcast network construction can improve network resource utilization efficiency and facilitate dynamic management.

1.2 Computer Network Technology

Although computer technology is no longer novel, it has together with the Internet propelled social development. The integration of computer technology and broadcast technology has alleviated the heavy workload and pressure on radio and television back-end operations under traditional technical support. Computer technology provides a relaxed and controllable environment for program scheduling and adjustment, standardizing the workflow from production to broadcast and allowing broadcast production personnel more time and energy for creative design, thereby improving work efficiency. For potential accidents during program playback, computer systems can automatically provide pseudo-adjustments to ensure program continuity. Moreover, as the broadcast industry continues to develop and audience demands increase, computer technology effectively guarantees program timeliness and interactivity.

1.3 FPGA Technology

FPGA (Field-Programmable Gate Array) technology, or field-programmable gate arrays, meets the current development trend of broadcast technology toward full digitalization and multi-dimensional integration. Traditional custom circuits face significant limitations, as neither structural design nor overall function optimization can satisfy development needs. FPGA technology leverages

logic cell array technology to improve system throughput, offering strong application flexibility and supporting unlimited reprogramming. High throughput meets audience demands for high-definition video playback while ensuring playback quality, providing powerful technical support for adapting to radio and television technology development needs and upgrading standards, shortening technology upgrade cycles, and improving overall broadcast service quality.

2.1 Serious Homogenization of Broadcast Programs

Information technology has further specialized broadcast channel frequencies and clarified industrial division of labor. Different channels provide audiences with more choices. To meet heterogeneous audience demands, radio stations in each province have even opened more than a dozen categorized channels, leading to excessively extensive operations and serious homogenization tendencies among programs. Some programs have undergone multiple revisions but remain backward in format, with few truly high-quality programs visible. Radio stations exhibit convergence in setup, mutual imitation, or routine copying, failing to incorporate regional characteristics based on their own advantages and giving insufficient consideration to listener feelings. Content repetition across different stations and frequencies makes it impossible to clearly distinguish program features, causing tremendous resource waste and leaving listeners at a loss. Although new technology has brought hardware improvements, program quality has declined, affecting the development of the broadcast industry [1].

2.2 Continuous Loss of Broadcast Audience

A diversified media market structure has already formed. In addition to traditional media such as radio, television, and print, new media including internet, mobile, digital media, and outdoor media have joined the landscape, providing audiences with increasingly numerous information channels oriented toward speed and efficiency. Radio and television face audience loss, particularly as network technology integrates the combined effects of television, radio, newspapers, and other media, satisfying diverse audience needs and diverting broadcast audiences.

2.3 Advertising Issues

For program survival, many radio stations disregard the social value of public resources and engage in advertising hype, with medical advertisements in particular becoming the broadcast industry's "sugar-coated bombs." Favored by radio stations for their low production costs, easy operation, and ability to generate direct sales effects, medical feature advertisements often contain false components, leading to declining audience trust in broadcast media and affecting broadcast brand and media credibility. Many stations allocate substantial time slots to faster-profit advertising projects, significantly impacting the fulfillment of broadcast public functions.

2.4 Impact of International Media

The development of international media has expanded the reach of domestic media. We can find foreign channels everywhere—CNN, BBC, NHK, CNBC, HBO, and others have already influenced the domestic media market. Competitors from the United States, United Kingdom, Japan, Germany, Russia, and more unfamiliar players have arrived in droves. Although national restrictions in this area are strict, no real barriers have formed before globalization trends and technological development. The essence of the current broadcast industry development situation remains insufficient application and innovation of broadcast technology. Therefore, besides finding reasons among media practitioners, we should take broadcast technology as the breakthrough point and recognize this fact.

3. Development Strategies for Broadcast Technology in the New Media Era

Science and technology are the foundation for broadcast survival and healthy development. The evolution from AM radio to FM radio to digital audio broadcasting has been the result of each technological innovation. New media technology is driving the broadcast industry into a new era.

3.1 Embrace Technological Innovation and Promote Broadcast Digitalization

Digital technology is good news for listeners but will also usher in more intense market competition for the entire broadcast industry, while bringing rising production costs and huge profit potential. The new media era is, in the final analysis, a competition of new technologies. Digital and computer technologies have built an information bridge, readjusting the entire broadcast industry landscape. Digital broadcast control systems, automated and networked office and management systems all provide the foundation for building a broadcast information highway. Digital construction uses unit-based digital equipment to reduce production costs and enable large-scale production. Digital technology facilitates the reproduction of the same content in different forms through unlimited editing, copying, and recombination, reducing broadcast marginal costs. Digital circuits facilitate various numerical operations and encoding, benefiting information synthesis [2].

3.2 Market Segmentation and Cultivating Loyal Audiences

Regarding the continuously shrinking broadcast audience, the broadcast industry should highlight channel effects and create diversified, personalized channels for fixed audiences. Considering audience groups' geographic proximity, cultural identity psychology, and psychological proximity, we should fully leverage broadcast characteristics and advantages. The launch of new channel programs

should be based on preliminary market research for target audience segmentation. After segmentation, we should emphasize market entry professionalism and propose different development strategies. The domestic broadcast industry has formed target markets at both urban and rural levels. Urban broadcasting, as urban populations mature, also presents possibilities for segmented communication; rural audience cultivation can draw on and absorb Western broadcast development history, deeply exploring broadcast development pathways and significance in rural areas, positioning communication concepts for different audiences, and finding survival paths suited to their own characteristics.

3.3 Quality as the Foundation, Building Professional Platforms

Quality is the lifeline of healthy broadcast industry development. In a competitive environment with global media participation, media resources should be optimally integrated. The domestic broadcast industry needs to leverage new media technology development to form a development path of channel specialization, program columnization, and localized operation, precisely positioning consumer and advertising markets, segmenting audiences, locking in core audiences, and developing formatted broadcast media. As a media relying on hearing for communication purposes, the only connection with audiences is sound, and the only tool available is also sound [3]. Using modern transmission equipment and high-tech means to improve broadcast transmission effects, highlighting broadcast advantages of rapid and accurate delivery, and setting program content to increase audience participation and closeness, we can achieve simultaneous news occurrence and dissemination effects, improve audience news presence, and thereby increase listenership.

3.4 Media Convergence, Building Collaborative Development Paths

Broadcast's greatest advantage is using hotlines and SMS platforms to improve interactivity, enabling real-time communication between hosts and listeners. New media possesses even stronger interactivity, relying on new technology to enrich and improve itself and expand application advantages. Through network forums, chat groups, Weibo, and web technologies, we can expand broadcast program space, shifting audiences from passive acceptance to active choice, allowing them to select their favorite broadcast programs on network platforms according to their needs.

3.5 Developing Networked Operations for Broadcast Media

Blocking is no longer sufficient to address globalization development trends. Through broadcast networking, we can leverage advantages of resource sharing, complementary strengths, and reduced station operation costs. Radio station networking can expand station influence and increase the visibility of high-quality stations. We can attempt joint network construction or program-centered cross-regional production to break through the influence of geographi-

cal restrictions on broadcast development. In advertising marketing, intensive operation models can generate scale effects.

The broadcast industry in the new media era must advance with the times, seek cooperation and symbiosis, and ensure steady progress in the broadcast industry through the application of new media broadcast technology. We cannot cling to outdated concepts; we must clearly target digitalization, networking, and specialization as our positioning, establish new media broadcast brands, and fully leverage broadcast advantages and functions.

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