

On the Advantages of Convergence between Broadcasting and Television Technology and Internet Technology: A Postprint

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Abstract

The development of Internet technology has also propelled the rapid development of new media platforms, presenting both opportunities and challenges for China's radio and television industry. In the context of the information age, radio and television technology is required to advance toward networking, digitalization, and modernization, thereby accelerating the development of the radio and television industry. Accordingly, this paper analyzes the advantages of integrating radio and television technology with Internet technology.

Full Text

On the Advantages of Integrating Broadcast Television Technology with Internet Technology

Abstract: The development of Internet technology has driven the rapid growth of new media platforms, presenting both opportunities and challenges for China's broadcast television industry. Against the backdrop of the information age, broadcast television technology must evolve toward networkization, digitization, and modernization to accelerate industrial development. This paper analyzes the advantages of integrating broadcast television technology with Internet technology.

Keywords: Broadcast television technology; Internet technology; Integration advantages

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1. Opportunities of Internet Technology for Broadcast Television Development

The development of Internet technology has profoundly impacted traditional broadcast television industries. To adapt to the evolving landscape, broadcast television must accelerate its business model transformation by integrating broadcast television technology with Internet technology, consolidating network technology, cable television technology, and multimedia technology to better serve the public. The industry can leverage Internet platforms such as Weibo and WeChat to foster intimate communication with audiences, enhance interactivity between television media and viewers, and extract valuable insights from collected data to improve services [?].

1.1 Transformation of Broadcasting Forms

With the development of mobile data networks, television audiences are no longer confined to television screens but increasingly access content through mobile phones, computers, and other terminals. This shift has significantly reduced traditional broadcast television viewership and constrained industry growth. Driven by Internet technology, the industry is transitioning from conventional television transmission to network-based distribution, aligning more closely with audience viewing preferences and accelerating development.

1.2 Enhanced Timeliness

In the information age ushered in by Internet technology, news must be highly timely. Traditional broadcast television technology relies on fixed broadcast schedules, which diminishes news value and fails to attract audiences when stories have already circulated through other media channels. Network technology facilitates the development of live television broadcasting, increasing programming flexibility and enhancing market competitiveness.

1.3 Stronger Interactivity

Note: The original text indicates this subsection but does not contain separate content, as interactivity is discussed in the opening paragraph of Section 1.

2.1 Improving Audience Viewing Experience

Traditional broadcast television operates on a mechanical transmission model where audiences passively receive programmed content, limiting their autonomy. Integrating broadcast television with Internet technology effectively changes this paradigm. While Internet technology is rapidly developing in China, television penetration still exceeds that of mobile phones and computers, creating substantial growth opportunities for the broadcast industry. This has given rise to “set-top box” technology, which stores massive amounts of broadcast programming and offers on-demand functionality. Viewers can select programs according

to their preferences and control playback through fast-forwarding, slow-motion, and other functions. Additionally, these devices feature powerful recording capabilities that capture entire broadcasts for later viewing, effectively attracting audience interest and improving ratings.

2.2 Reducing Operational Costs

Traditional broadcast television programs require extensive staff coordination for successful transmission, resulting in high operational costs. Despite shrinking audiences due to Internet technology, broadcast costs remain unchanged, diminishing economic returns. Integrating broadcast television with Internet technology can significantly reduce operational costs and improve economic efficiency. For news programs, traditional production requires numerous personnel including reporters, editors, chief editors, captionists, audio engineers, and communications staff. Producing a program demands that reporters and camera crews travel to news sites, edit footage, and obtain approval before broadcast—consuming substantial human resources, material assets, and time. Under triple-network convergence, resource sharing becomes possible: broadcast stations can upload edited news content directly to other networks for distribution, eliminating the need for redundant reporting and editing while reaching broader audiences. This approach substantially increases ratings, reduces operational costs, and enhances economic benefits, facilitating rapid industry development [?].

2.3 Rapid Increase in Audience Groups

Traditional broadcast television serves a fixed segment of the population, but Internet technology has shifted attention toward computers and mobile phones, reducing viewership and hindering industry growth. Integrating broadcast television with Internet technology enables network interoperability that can convert netizens into loyal television viewers, rapidly expanding the audience base. This interoperability also encourages television viewers to learn computer network technology for online program access while prompting netizens to master television on-demand technology, collectively advancing China's network information technology capabilities and enhancing industry competitiveness.

2.4 Promoting Rapid Development of Television Live Broadcasting

Traditional broadcast television suffers from poor timeliness, with programs confined to fixed schedules. New media platforms enable real-time news publication by netizens, placing broadcast news in a passive position and diminishing news value. Integrating broadcast television with Internet technology promotes the development of live broadcasting technology, primarily through two methods: broadcast van transmission and mobile phone live streaming. Broadcast vans transmit on-site news via wireless networks to station receivers for real-time distribution, though this method is costly. Mobile phone live streaming uses

applications like TVU to connect via mobile data networks to station receivers, offering lower costs, greater flexibility, and requiring only a smartphone with specific software and a SIM card. Both methods deliver vivid audio-visual content from the scene, effectively attracting audiences, enhancing market competitiveness, and accelerating industry development.

2.5 Greater Flexibility in Television Live Broadcasting

Traditional television live broadcasting faces strict time constraints, with each program adhering to precise duration standards. Deviations can cause broadcast accidents with serious consequences. Before transmission, programs must be uploaded to the master control room, and once the playlist is finalized, it cannot be changed—creating significant safety risks for live broadcasts. Integrating network technology with broadcast television technology connects studio control systems with master control systems, enabling editors to adjust playlists remotely based on timing and programming needs. This flexibility effectively prevents broadcast accidents and ensures safe, stable industry development [?].

3.1 Expanding Market Scope

Currently, China's broadcast television industry focuses primarily on economic returns while neglecting other functions, limiting market scope. The industry must expand its reach by developing cultural markets. This requires adopting advanced cultural communication management concepts and increasing investment in cultural industries to enhance China's cultural soft power and accelerate television industry development.

3.2 Strengthening Content Innovation

As broadcast television and network technologies develop, China's television programming has expanded to hundreds of channels that nominally satisfy audience needs, but this represents only narrow innovation that still constrains industry growth. In a broader sense, broadcast television possesses production advantages but has not fully realized industrial chain value. The industry must integrate resources, optimize allocation, innovate content, improve production capacity, and perfect industrial chain development trends by merging different media and industries to leverage respective strengths and enhance economic returns.

3.3 Developing Diversified Economic Approaches

The primary factor limiting broadcast television development is its singular business model that relies mainly on advertising revenue. While some entities have begun exploring diversified economic development through investments in real estate, tourism, and other sectors, such ventures often lack expertise and increase financial burdens and risks. Diversification should remain media-centric,

leveraging industrial advantages by integrating broadcast television technology with Internet, multimedia, and information technologies to innovate industrial chain economics. Simultaneously, businesses must innovate and expand operations by combining singular models with diversified services to improve industrial efficiency and accelerate development.

4. Conclusion

The development of Internet technology has imposed higher demands on broadcast television production and operations. Integrating broadcast television technology with Internet technology is essential to fully leverage inherent strengths, accelerate business model transformation, develop industrial chain economics, and promote rapid industry development.

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

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