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Enhancing Advertising Order Broadcast Management Efficiency Through the Integration of Advertising and Broadcast Networks (Post-Print)

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Abstract

In the current era dominated by new media, the survival and development of the traditional media industry face tremendous challenges. At present, various media organizations are pursuing diversified development, striving to optimize the proportion of their existing advertising-centric revenue structure, integrating available resources, and gradually transitioning toward non-advertising revenue generation to mitigate the risk pressure from the advertising market, thereby gradually transforming the traditional media industry's revenue model from single-track growth to diversified growth.

Full Text

Improving Advertising Order and Broadcast Management Efficiency Through Integration of Advertising and Broadcast Networks

Abstract: At a time when new media dominates, traditional media faces significant survival and development challenges. Media organizations are diversifying to optimize their advertising-centric revenue structures, integrating resources and transitioning toward non-advertising revenue streams to mitigate market risks and transform from singular to diversified growth models.

Keywords: Radio; Advertising Broadcast; Efficiency

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Although various media organizations are pursuing innovation and transformation, adjusting industrial structures and exploring new economic growth points,

advertising revenue remains a crucial source of income for media economic development and self-sustaining growth. The proportion of advertising revenue will maintain its significant position within the media industry's income structure for the foreseeable future.

With the stable development of the market economy and supportive national policies, radio stations' advertising revenue continues to reach new heights, with annual targets increasing year by year. Simultaneously, structural reforms and personnel system changes are gradually reducing fiscal appropriations for media institutions, encouraging self-financed development models. This places operational revenue generation in a critical position. To protect employee welfare and secure development funds, organizations must improve program quality, industrial output efficiency, and, most importantly, increase revenue generation to adapt to evolving needs.

Increasing revenue generation currently hinges on improving advertising income. Effective approaches include not only enhancing program quality and arranging advertising slots more rationally but, more critically, improving the operational management efficiency of advertising production, order placement, broadcasting, and administration.

To improve existing workflows, a controllable business process must be designed that enables physical integration between the advertising network and broadcast network while ensuring safe broadcasting. This system should reduce manual operations by implementing an advertising order management system directly controlled by the advertising management system.

Traditional radio advertising operation models feature cumbersome processes, with advertising management disconnected from contract broadcasting. The advertising and broadcasting systems operate on separate networks lacking physical integration, creating a broken management chain. Different operators must manually enter data into their respective systems, often leading to advertising errors and missed broadcasts. Involving numerous departments results in low operational efficiency and supervision effectiveness. Therefore, transforming the inter-departmental advertising workflow into independent management by a single Advertising Operation Management Center has become the primary issue to address.

The existing workflow is illustrated in Figure 1 [Figure 1: see original paper]. Its prominent defects include the disconnect between advertising management and contract broadcasting, along with extensive manual involvement.

Through analysis of the current model and feasible solution design, the technical department should employ technical means to redesign and integrate the advertising flow system using existing equipment without affecting current production and broadcasting operations. This aims to transform inter-departmental flows into intra-departmental processes, thereby improving advertising revenue management efficiency.

Regarding hardware renovation, integrating the advertising network with the broadcast network requires dual-path reconstruction of the original advertising system. Advertising order placement concerns safe broadcasting, and any failure would have significant impact. The original advertising management system, which did not consider order placement, had low security. Therefore, dual pathways must be ensured to avoid single-point failures, and an air-gap system must be added to protect broadcast network security and safeguard data transmission between networks. Additionally, an FTP server for advertising audio copying must be added to the broadcast system to copy advertising audio for order placement and broadcasting.

After renovation, the new advertising system will integrate with the broadcast network, modifying certain positions and operations in the original workflow. The adjusted process is shown in Figure 2 [Figure 2: see original paper].

The new system offers several advantages. First, daily broadcast order transmission synchronizes advertising schedules for a configurable number of future days to the broadcast system. Even if network failures occur, the broadcast system maintains sufficient backup schedules, ensuring most advertisements air without disruption. Second, the air-gap system's dual-machine cold standby (or load balancing with manual takeover) prevents single-point failures, minimizing fault impact. Third, in extreme scenarios where both machines fail irreparably, an emergency pathway activates to reduce advertising errors during recovery. The emergency scheduling process imports recorded audio directly into the broadcast network's advertising backup library, enabling manual intervention with comprehensive logging for auditing. Upon recovery, material synchronization proceeds based on advertising network data.

Figure 4 [Figure 4: see original paper] illustrates the emergency handling process under complete network disconnection (shown within the red border). Unlike the existing workflow, emergency advertising scheduling is completed collaboratively by the advertising department rather than individual frequencies.

The workflow's prominent features consider operational habits and position authority processes while ensuring safe broadcasting. Implementation involves adding two advertising management servers to the original network, reconfiguring the entire network deployment, and adjusting all stations. The connection pathway between networks is increased, air-gap equipment is added to enhance security, and existing broadcast network hardware is reconfigured to achieve dual-network integration.

First, storage areas should be established within the advertising network, with shared folders created on both advertising management servers. Next, configuration modifications are made to existing broadcast network servers, adding an emergency scheduling server with emergency scheduling functions. Finally, additional configuration is performed on this server: the previous advertising database is restored, and relevant forms are modified to align with advertising storage areas in the broadcast database.

The integrated system network deployment and new workflow processes are illustrated in Figure 3 [Figure 3: see original paper].

This solution balances broadcast safety with improved advertising management efficiency. Upon completion and launch, it will fundamentally transform traditional radio advertising workflows and lay the foundation for integrated all-media development. The overall system is inherently safe and reliable; however, considering that failures could cause serious broadcast accidents with social and economic consequences, the solution employs a multi-level emergency response mechanism.

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

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