

## Exploring the Convergence of OTT Radio and Social Media: Big Data Insights for Broadcasting

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**ABSTRACT:** The convergence of over-the-top (OTT) radio broadcasting and social media has profoundly transformed the audio-media landscape, generating novel opportunities for audience engagement and content promotion. The objective of this study is to analyse audience perceptions of OTT radio platforms using insights derived from social media big data analysis. The objectives of this research are threefold: first, to identify key patterns and trends in audience engagement; second, to explore the effectiveness of social media analytics tools; third, to provide actionable recommendations for radio stations. The overarching objective is to address the existing lacuna in our understanding of the unique audience dynamics of OTT radio stations. The findings indicate that social media has significantly affected the reach and popularity of OTT radio broadcasts by functioning as a dynamic channel for content promotion, audience engagement, and community building. However, it is imperative to acknowledge the challenges posed by saturation, reliance on algorithms and negative feedback. This study posits that social media functions as a catalyst and instrument for over-the-top (OTT) radio broadcasting to broaden its reach and enhance its popularity. However, it also identifies challenges that necessitate strategic navigation..

**KEYWORDS:** Over-The-Top (OTT) radio broadcasting, Social media big data analytics, Audience engagement, Content promotion, Community building, Content personalisation, visuals, Sentiment monitoring

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### I. INTRODUCTION

Over-the-top (OTT) radio signifies the ongoing digital transformation in media, integrating the fundamental tenets of conventional broadcasting, such as community connections and real-time updates, with the sophisticated functionalities of digital platforms. This integration is strategically designed to align with the evolving behaviours of listeners, thereby creating new opportunities for radio broadcasters, advertisers, and content creators. The convergence of media, driven by technological advancements, is profoundly reshaping the broadcasting landscape, particularly for audio media, such as radio. (Dhamayanti, 2022) Notwithstanding the advent of digital platforms, radio has sustained its status as a substantial medium, retaining a devoted listener base. (Dhamayanti, 2022) Its accessibility and adaptability to diverse contexts are key factors contributing to its enduring popularity, even in regions with high internet penetration. (Brooke, 2024) The integration of Internet technology and social media has enabled radio stations to expand their reach and adapt to changing consumer behavior. (Arief, 2019) In contemporary landscapes, radio stations employ the Internet to promote broadcast content, interact with audiences, and generate new revenue streams. (Brooke 2024)(Dhamayanti 2022)

The enduring appeal of the radio can be attributed to its capacity to adapt and integrate new technologies. Adaptability is crucial in maintaining its role as a significant source of information, entertainment, and community connections. (Brooke, 2024) The advent of communication technology has had a profound impact on human life, particularly in the domain of broadcasting (Jones et al. 2003)(Dhamayanti, 2022). Digital transformation has been identified as a catalyst for media convergence, thereby altering the manner in which information is handled, provided, distributed, and processed in various forms, including visual, audio, and data formats (Dhamayanti, 2022). The transition to over-the-top (OTT) radio broadcasting signifies a substantial shift in the manner in which audio content is consumed. There has been a notable shift from conventional terrestrial radio to Internet-based delivery. This transition offers listeners an unparalleled degree of flexibility in terms of media consumption as it facilitates access to radio programs at any moment and from any location by employing a range of devices. As Compaine and Smith (2005) demonstrated, this transition offers listeners a degree of flexibility that is unparalleled in the realm of media consumption. It enables access to radio programs at any moment and location by employing a range of devices. The advent of the Internet has facilitated this transition by complementing and, in some cases, replacing FM transmissions. Consequently, the listening range of the radio was extended, and the limitations of frequency reception were removed. (Laor, 2022) The advent of on-demand content access, irrespective of transmission schedule, has been a notable development. This technological advancement has introduced two notable advantages: the ability to access content from any global

location, and the capacity to customise content consumption. (Laor, 2022) The advent of online radio has been demonstrated to enhance radio stations' engagement with listeners. This enhancement enables stations to respond to broadcast content across multiple platforms and receive feedback within minutes of broadcast. (Laor, 2022) The advent of mobile internet access has had a significant impact on the proliferation of internet radio, enabling new entities to disseminate interactive content to mobile listeners. As Compaine and Smith (2005) indicate, the advent of mobile Internet access has expanded the reach of Internet radio, allowing new broadcasters to deliver interactive content to mobile listeners. The increased mobility of consumers has engendered novel opportunities for internet radio broadcasters to compete with traditional AM and FM stations. As posited by (Compaine and Smith (2005), this increased mobility has engendered novel opportunities for internet radio broadcasters to compete with traditional AM and FM stations.

In the context of over-the-top (OTT) radio broadcasting, the utilization of social media big data analytics empowers broadcasters to understand listeners' interactions with various platforms, identify content that resonates with them, and determine methods to improve their overall experience. This process of analyzing voluminous, unstructured data yields strategic insights, thereby empowering organizations to make informed decisions and maintain competitiveness in their respective domains. Real-time live-streaming data demonstrated that LSIs' participation significantly enhanced the frequency of tipping in live-streaming rooms. Furthermore, an increase in the number of users attracted to live streaming rooms was observed, along with an increase in the number of active participants. Furthermore, the positive impact of LSIs' participation was amplified in live-streaming rooms with a greater number of relationship links between users. (Wei, 2022) The prevailing opinion power has transitioned to a datafile version of the audience, thereby giving rise to novel inquiries concerning platform dependency and editorial autonomy within media organizations. (Dodds et al., 2023) The objective of the present study, entitled "Analysing Perceptions of Over-The-Top (OTT) Radio Broadcasting with a Focus on Social Media Big Data Analysis," is to analyze audience perceptions of OTT radio platforms using insights derived from social media big data. The secondary objective was to identify the key patterns and trends in audience engagement with OTT radio, as observed through their interactions and sentiments on social media. This study explored the effectiveness of social media analytics tools in assessing audience behaviour, preferences, and feedback for OTT radio broadcasters. This study aims to provide actionable recommendations for OTT radio broadcasting to capitalise on social media insights to enhance content and augment listener satisfaction.

## **II. RESEARCH METHOD**

This research employs a qualitative methodology that utilises a study approach involving the collection of data from social media platforms, such as Twitter, Instagram, and Facebook. Data collection was facilitated by the employment of APIs or scraping tools, with ethical considerations being prioritised throughout the process. The emphasis should be on data types, such as user comments, likes, shares, or hashtags related to the OTT radio platform. Sentiment analysis, a critical component of this study, involves the automated assessment of textual data to discern the emotional tone underlying the text. The sentiment analysis process involves classifying textual data into positive, negative, and neutral sentiment categories. Furthermore, leveraging trend analysis enables the identification of popular topics, hashtags, or themes that resonate with OTT radio users.

## **III. LITERATURE REVIEW**

In the contemporary digital era, audio media has proliferated via the Internet, signifying a new era in media consumption. Research from the Reuters Institute substantiates the findings of the Nielsen survey, indicating that the audio landscape is undergoing substantial transformation. (Dhamayanti, 2022) The study revealed that radio penetration in Indonesia reached 38% in the third quarter, and projections suggest that 2020 will be the "new golden era of audio." (Dhamayanti, 2022) However, it is imperative to acknowledge the distinctions between radio and podcast listeners. Research has explored the emergence of over-the-top (OTT) platforms as disruptors of traditional media. Research has identified factors that influence listeners' perceptions, including convenience, personalisation, and content variety. The capacity of the radio to adapt and integrate emerging technologies has contributed to its sustained relevance, positioning it as a crucial source of information, entertainment, and a sense of community. (Wei, 2022)(Dodds et al., 2023)The capacity to access radio programs simultaneously with other activities increases their appeal, attracting advertisers to reach listeners outside their homes (M. A. Jones et al., 2003). Furthermore, Internet and mobile technologies are poised to assume an increasingly significant role in content distribution for broadcasters, as multi-platform media offer cost-effective alternatives for transmission. This study examines the relationship between social media engagement and big data in the context of radio broadcasting. Big data analysis has been demonstrated to offer insights into customer behaviour, market trends, and operational efficiency. (Chan-Olmsted et al., 2020)

This study underscores the importance of a data-driven approach for understanding listener behavior and optimizing content strategy. Social media platforms offer innovative radio station methodologies for engaging listeners, fostering communities, and gathering feedback. For instance, prominent platforms such as Spotify and TuneIn have been observed to exert a transformative effect on the manner in which listeners consume audio content. These platforms prioritise on-demand access and cross-platform compatibility, thereby altering the audio-consumption landscape. The capacity of radio to adapt and integrate emerging technologies has contributed to its sustained relevance, positioning it as a crucial source of information, entertainment, and a sense of community. (Dhamayanti, 2022)(Chan-Olmsted et al., 2020) In contemporary Australia, radio broadcasting continues to attract sizable audiences, with notable levels of engagement among older adults. This study sought to examine the perceptions of radio personnel and listeners regarding the role of radio and the impact of radio engagement on listener well-being. (Krause and Fletcher, 2023) Furthermore, Internet and mobile technologies are poised to assume an increasingly significant role in content distribution for broadcasters, as multiplatform media offer cost-effective alternatives for transmission.

The impact of social media on broadcasting has been the subject of extensive research, with findings emphasizing its ability to increase audience engagement and facilitate rapid content dissemination. The application of big data analytics to social media can reveal insights into listener preferences, sentiments, and emerging trends. These insights can be utilized by radio broadcasters to refine their programming and advertising strategies, thereby enhancing the effectiveness of their communication efforts. Sentiment analysis and audience interaction on social platforms have been identified as valuable tools by which broadcasters can gauge public opinion and refine their strategies. Researchers have explored how audience participation is maximised through online platforms, allowing them to engage, share, comment, criticise, add content, evaluate, vote, rate, promote, elaborate on their own material, and become involved in different stages of the meaning-making process (Jones et al., 2003) (Chan-Olmsted et al., 2020)

**Convergence in Audio Broadcasting:** Audio broadcasting is currently undergoing a period of convergence, resulting in substantial alterations to the methods for handling, providing, distributing, and processing information. Big data analytics has been extensively adopted in the media industry to monitor audience behaviour, predict trends, and personalise content. Research has indicated that analytics tools can generate actionable insights, facilitating content delivery optimization and audience targeting. By examining listener behaviour, content preferences, and engagement patterns, broadcasters can refine their programming and align it more closely with listener expectations. Social media analytics provides a unique opportunity for businesses to conceptualise the market as a dialogue between themselves and their customers. The proliferation of social media platforms, exemplified by Twitter, has led to a substantial surge in content creators and the diversity of content published on these platforms. (Knittel et al., 2022) Individuals disseminate a wide array of content, including everyday experiences, opinions, business updates, and research findings. (Chan-Olmsted et al., 2020) (Dhamayanti, 2022) (Abu-Salih et al., 2021) (Knittel et al., 2022)

A considerable body of research has been dedicated to sentiment analysis, underscoring the efficacy of leveraging social media interactions to gauge public sentiments across diverse media platforms. Researchers have employed this technique to understand brand reputation, service satisfaction, and content preference. Sentiment analysis plays an instrumental role in measuring customer perceptions of goods, services, and advertisements, thereby facilitating product, operational, and departmental improvements (Jones, 2019)(Axhiu et al. 2014) Furthermore, sentiment analysis has been demonstrated to facilitate the identification of preferred distribution channels and enhance media organisations' capacity to understand consumer opinions. (Abu-Salih et al. 2021) This capability enables media organisations to effectively gauge audience reactions to specific content, advertising campaigns, or overall brand messages. Most research has focused on video-based over-the-top (OTT) platforms such as Instagram, Facebook, YouTube, and TikTok. However, there is a paucity of research on the OTT radio technology. The present study aims to address this issue by emphasising the distinctive audio content and listener dynamic characteristics of OTT radio. Although social media analytics has gained prominence in the domains of marketing and video streaming, its specific application to over-the-top (OTT) radio broadcasting remains under-explored. The analysis of social media big data to understand radio listeners has the potential to reveal new avenues. Integration of insights from multiple perspectives: Existing research frequently addresses subjects such as audience behavior, social media analysis, or broadcasting in isolation. However, there is a paucity of studies that comprehensively integrate these dimensions into the context of over-the-top (OTT) radio. The majority of research concentrates on video-based over-the-top (OTT) platforms, such as Instagram, Facebook, YouTube, and TikTok. However, there is a paucity of research on the OTT radio technology.

The present study aspires to address this dearth by emphasizing the distinctive audio content and listener dynamics characteristics of OTT radio. While social media analytics has gained prominence in the domains of marketing and video streaming, its specific application to over-the-top (OTT) radio broadcasting remains under-explored. The analysis of social media big data to understand radio listeners has the potential to reveal new avenues. Integration of insights from multiple perspectives: Existing research frequently addresses subjects such as audience behavior, social media analysis, or broadcasting in isolation. However, there is a paucity of research that comprehensively integrates these dimensions into the context of the OTT radio. The accelerating development of digital technologies, in conjunction with intensifying competitive dynamics in the media sphere, underscores the importance of contemporary research attuned to the evolving trends and challenges associated with over-the-top (OTT) radio. The integration of radio and podcasts offers a variety of experiences, with podcast listeners demonstrating higher levels of engagement in content and platform selection than radio listeners do. (Dhamayanti, 2022)The radio's enduring relevance can be attributed to its capacity for concurrent listening, a feature that allows individuals to engage with it while engaging in other activities. To develop a comprehensive understanding of the role and impact of social media on OTT (over-the-top) radio broadcasts, it is imperative to explore several aspects. These include the assessment of listener engagement metrics across various social media platforms, utilisation of big data analytics to identify listener preferences and trends, and the evaluation of the effectiveness of social media strategies for radio content promotion. Additionally, it is imperative to examine audience sentiment expressed on social media platforms. This analysis can contribute to the enhancement of content and the optimization of the user experience. It is imperative to investigate how radio stations employ social media to cultivate community buildings. Finally, it is imperative to assess the impact of social media on the monetization of over-the-top (OTT) radio services.

#### **IV. FINDINGS AND DISCUSSION**

The findings provide significant insights into the evolving radio broadcasting landscape, particularly regarding the integration of digital platforms and social media strategies. The advent of social media has precipitated a paradigm shift in the scope and popularity of over-the-top (OTT) radio broadcasting. This transformation can be attributed to the role of social media as a dynamic channel for content promotion, listener engagement, and community-building.

❖ **This study was conducted to analyse audience perceptions of over-the-top (OTT) radio platforms using insights derived from social media big data.**

The objective of this study is to evaluate the impact of social media on OTT radio stations. The evaluation encompassed various metrics, including increased reach, heightened popularity, real-time interaction, community building, promotion of specialized content, analyses, and insights. The proliferation of over-the-top (OTT) radio broadcasts, facilitated by social media platforms, such as Facebook, Instagram, Twitter, TikTok, and YouTube, has enabled the expansion of these broadcasts beyond geographical boundaries. Consequently, local radio stations have gained the ability to attract international listeners, thereby expanding their audience reach and revenue potential (i.e. global access). The advent of social media has precipitated the evolution of advanced targeting mechanisms, enabling the dissemination of content to discrete audience segments based on criteria, such as demographics, interests, and behavioural patterns. Consequently, this has enhanced the visibility and relevance of content, thereby fostering a more engaged and informed audience (targeted advertising).

Social media platforms function as conduits for the rapid dissemination of content, thereby amplifying the popularity of a program, episode, or host. Memes, defined as short audiovisual recordings, and interactive challenges related to over-the-top (OTT) radio frequently generate significant interest, often resulting in accelerated dissemination of content. Partnering with social media influencers is an effective strategy for OTT radio platforms to attract new listeners by leveraging the vast follower base of influencers. This collaborative approach can be a fruitful strategy for OTT radio platforms seeking to expand their audiences. Features such as live broadcasts, polls, and question-and-answer sessions facilitate direct communication between broadcasters and listeners, thereby creating a more interactive and personalized experience (direct engagement). Listeners are empowered to provide real-time feedback, pose inquiries, and express their perspectives, enabling broadcasters to adapt their content to align with listeners' preferences. The advent of social media has not only enabled the formation of communities around OTT radio stations, but also fostered interaction among listeners, facilitating the sharing of common interests and engagement in content-related discourse. Furthermore, radio stations often employ social media platforms to organise events, contests, and giveaways, thereby fostering a stronger sense of community and loyalty among listeners. These platforms offer immediate feedback mechanisms that enable broadcasters to adapt their content based on listeners' preferences and suggestions (Reviewing Listener Feedback). Real-time analysis of metrics such as "likes", "comments", and "shares" shares enables stations to

assess the efficacy of their content and identify areas for enhancement. (Prasetyo et al., 2022) Moreover, broadcasters have the opportunity to explore novel formats and subjects to optimize their content for the benefit of their audience. However, the integration of social media with over-the-top radio broadcasts introduces a set of challenges that require meticulous consideration. A particularly salient challenge pertains to the effective moderation of content and management of negative comments or feedback. Social media platforms offer broadcasters the opportunity to cultivate a community of enthusiasts centred on their content, thereby fostering brand loyalty and facilitating sustained engagement. The utilization of specialized groups, hashtags, and forums has been demonstrated to facilitate the formation of relationships between listeners and broadcasters. Social media platforms provide sophisticated analytics of audience behaviour, preferences, and engagement. These insights can assist broadcasters in refining strategies to optimise their reach and popularity. Metrics, including audience demographics, interests, and behavioral patterns, offer valuable information for broadcasters to make data-driven decisions. Additionally, sentiment analysis of comments and feedback on social media can assist broadcasters in assessing audiences' perceptions of their content and identifying areas of enhancement. The saturation of media content in contemporary society is a salient issue that must be addressed. Given the abundance of content available on social media platforms, it is imperative for over-the-top (OTT) radio services to devise effective strategies to distinguish themselves from their competitors. Shifts in the algorithms employed by social media platforms have the potential to affect the visibility of over-the-top (OTT) radio content, thereby influencing its reach and popularity (Algorithm Dependency).

This phenomenon is particularly evident in the context of campus radio stations, which encounter considerable challenges in maintaining their viability in emerging digital landscapes (Sabran et al., 2020). (Sabran et al., 2020) To address this need, a qualitative case study approach incorporating in-depth interviews, a comprehensive literature review, and observational studies is recommended to elucidate the integration of Internet technology and social media in broadcasting operations. The integration of social media as a conduit for content promotion and audience interaction signifies a pivotal innovation. To remain relevant and effective, it is essential for organisations to adapt to prevailing trends in consumer culture and behaviour. This adaptation is particularly crucial, as novel technologies emerge and bring with them changes that must be addressed and integrated into marketing strategies. (Arief, 2019) For instance, radio stations can enhance the quality of their broadcasts by incorporating quizzes, talk shows, news, information, and music during ongoing pandemics. These measures have proven to be effective in attracting both listeners and advertisers. (Prasetyo et al., 2022)(Prasetyo et al., 2022).

Social media platforms offer unparalleled opportunities for over-the-top (OTT) radio stations to interact with listeners and to cultivate communities. Through the analysis of substantial social media data, broadcasters can acquire valuable insights into audience preferences, behaviors, and sentiments, enabling them to effectively tailor their content and promotional strategies (Sunarsa et al., 2020). (Sunarsa et al., 2020) The advent of social media has engendered a paradigm shift in the role of broadcasters, rendering them susceptible to public censure and the management of adverse commentaries. The advent of social media has rendered broadcasters susceptible to public censure, necessitating the effective management of adverse commentary to preserve brand image. Over-the-top (OTT) radio stations have the potential to enhance listener reach and engagement by leveraging social media platforms.

❖ **To identify listeners through social media interactions and sentiments, it is necessary to consider the following aspects:** A range of analytical tools must be employed to assess the tones of user comments, posts, and reviews. These tools include VADER, TextBlob, and Hootsuite. The use of these tools facilitates the evaluation of audience perception. 2. Identification through social media interaction and sentiments. The following aspects must be considered. A range of tools should be employed to assess the tones of user comments, posts, and reviews, including VADER, TextBlob, and Hootsuite. The implementation of these tools facilitates the evaluation of audience perceptions, which can be classified as positive, negative, or neutral. By 2024, audio is projected to enter a new golden era, following a radio penetration rate of 38% in the third quarter of 2016 in Indonesia. (Dhamayanti, 2022) A salient distinction emerges between radio and podcast listeners, with podcast listeners exhibiting higher levels of activity and engagement in content selection, in contrast to radio listeners, who primarily passively engage with radio content. Consequently, campus radio stations must leverage social media platforms to foster active audience engagement. Establishing a robust legal foundation is imperative to ensure optimal networking with pertinent institutions in an autonomous and impartial manner. This approach is imperative for cultivating regional cultural characteristics in the context of advancements in information technology. (Sunarsa et al., 2020) Sunarsa et al. (2020)

A recurrent motif has been identified in positive sentiments, such as appreciation of content variety, and negative sentiments, including complaints about technical issues. Tracking metrics, including likes, shares, comments, and mentions, serve as a means of assessing the extent of audience engagement with the OTT radio content. It is imperative to identify the types of posts that generate the most interaction, such as promotional content, behind-the-scenes clips, or user-generated content. A comprehensive analysis of hashtags, keywords, and trending topics related to OTT radio is essential for determining the content that resonates most profoundly with the audience. It is imperative to discern patterns on days or weeks when engagement levels reach their zenith. This information is critical for the development of effective scheduling strategies. The application of social media analytics enables audiences to be segmented based on criteria, such as age, gender, geographic location, and interests. This approach enables the customisation of content for specific demographic groups. It is imperative to closely monitor viral challenges, memes, or campaigns involving over-the-top (OTT) radio content. These trends have the potential to substantially increase visibility and engagement. It is imperative to allocate sufficient attention to direct feedback from users, including suggestions for new features and content. This practice yields concrete insights that can be used to refine platforms. Subsequent analyses will assess the role of influencers and brand ambassadors in promoting OTT radio stations. Subsequent analyses will examine the impact of these endorsements on listener engagement and sentiment. A comparison of engagement patterns between competitors can facilitate the identification of unique strengths and areas that require improvement.

**❖ We examined the effectiveness of social media analysis tools in measuring audience behaviour, preferences, and feedback during radio broadcasts on over-the-top (OTT) platforms.**

Many digital instruments designed to compile substantial datasets from prominent social media platforms, including Twitter, Instagram, and Facebook, are available. These digital tools, including Hootsuite, Sprout Social, and Brandwatch, are designed to capture user interactions and hashtags, thereby providing a comprehensive overview of online activities (Data Collection). Conducting an in-depth assessment of marketing effectiveness requires excellence in both quantitative and qualitative assessment. (Smith, 2022) It is imperative to regularly measure and analyze key performance indicators (KPIs) to ensure the fulfillment of marketing objectives. (Syaparudin et al., 2023) In the contemporary context, Instagram has evolved beyond its original function as a mere communication and information platform, profoundly permeating numerous sectors, particularly the marketing sector. To obtain precise insights into customer perceptions and satisfaction levels, it is imperative to collect qualitative evaluations of customer feedback. (Adhiazni et al., 2019)

The present study used a questionnaire to collect data from 150 respondents, employing purposive sampling to assess their responses to each variable. (Syaparudin et al., 2023) A rigorous quantitative data analysis was conducted, encompassing a comprehensive array of tests and analyses. These included validity and reliability tests, classical assumption tests, hypothesis tests, and coefficient of determination analyses. Employing such meticulous methods ensured thorough examination of the data. (Syaparudin et al., 2023) Sentiment analysis tools such as VADER or TextBlob are employed to assess the tone of user-generated content and identify positive, negative, or neutral sentiments. Analytics platforms can categorise audiences based on demographics, interests, and behaviours, thereby facilitating the implementation of targeted content strategies (i.e. audience segmentation). The identification of prevailing trends and hashtags pertinent to over-the-top (OTT) radio broadcasts can be facilitated by tools such as Google Trends and BuzzSumo. These tools assist in identifying content that is gaining traction, thereby facilitating the optimization of content creation. Social media analytics platforms have been developed to facilitate monitoring and reporting by tracking engagement and brand sentiment in order to assess the efficacy of marketing campaigns. (Johana et al., 2020)(Viranda Adhiazni, 2019) A thorough examination of user comments, reviews, and ratings is essential for evaluating satisfaction levels and identifying areas that necessitate enhancement. The fundamental purpose of Instagram is to disseminate visual content, such as photographs and videos.

The platform incorporates functionalities, such as comments and likes, akin to those found in analogous applications, such as Facebook. (Rachmawaty, 2021) The search functionality that presents popular photos and videos, as well as nearby locations, is designated as "Explore." Conversely, Instagram Story is designed to enable the distribution of ephemeral content such as photos and videos within the parameters of the Instagram Story interface. Conversely, IGTV enables video playback for up to 60 min with a file size of 5.4 GB. The utilization of platform analytics is of paramount importance, as it facilitates the formulation of a targeted content strategy. The employment of social media analytics in marketing initiatives is imperative to ensure effective targeting of consumers. Click or tap to enter text. Account proprietors can disseminate advertisements in the form of visual media to achieve a broader audience reach and accomplish promotional objectives. Enhanced audience comprehension social media analytics provides insights into listener preferences, enabling broadcasters

to customise content according to audience requirements. Broadcasters' ability to observe audience reactions to programs or campaigns in real time enables the implementation of immediate adjustments, also known as real-time feedback. By examining engagement metrics (e.g. likes, shares, and comments), broadcasters can ascertain what appeals to their audiences and refine their strategies (Better Engagement). Analytical tools are capable of transforming raw data into actionable insights, thereby supporting strategic planning and content optimisation (data-driven decision-making). The sheer volume of data can be overwhelming and requires skilled analysts to extract meaningful insights (data overload). The algorithms utilised by social media platforms can prioritise specific content types, a practice that has the potential to skew analysis results (algorithm bias). It is imperative to observe ethical considerations regarding data collection and user privacy in order to maintain trust (privacy concerns). It is important to note that a single tool does not offer a comprehensive solution to these challenges; rather, combining multiple tools may be necessary for thorough analysis (tool limitations).

Analytics are employed to recommend programs or playlists based on listener preferences (content personalisation). Furthermore, analytics can assess the efficacy of promotional campaigns and identify successful strategies and areas that require enhancement (campaign optimisation). To assist OTT radio broadcasters in the effective utilisation of social media insights for content optimisation and listener satisfaction, the following actionable recommendations are proposed. The implementation of analytics tools, such as Hootsuite, Sprout Social, or Brandwatch, facilitates the monitoring of audience interactions, preferences, and peak activity times. Furthermore, a comprehensive understanding of audience demographics, including age, gender, location, and interests, is imperative to ensure the effective customisation of content. The regular provision of captivating and relevant content based on emerging trends and audience feedback is instrumental in increasing engagement levels. Moreover, it is imperative to engage in the perpetual observation of comments and feedback on social media platforms to assess satisfaction levels and identify areas of improvement. A comparison of performance with competitors is imperative to identify areas of improvement and new opportunities. Insights derived from listener behaviour can be leveraged to construct playlists or program schedules that align with popular genres and trending topics. The use of artificial intelligence (AI)-driven analytics enables the provision of programs or episodes customised to listeners' preferences. The organisation of live question-and-answer sessions, polls, or contests on social media platforms such as Instagram and Twitter is conducive to fostering real-time interaction. In addition, it is crucial to respond to audience comments and reviews promptly, thereby demonstrating a commitment to incorporate feedback into future content creation. Furthermore, the implementation of targeted promotional campaigns on social media platforms is recommended with the objective of reaching specific demographics and interests that demonstrate a high degree of resonance with the OTT radio content. In addition, it is crucial to explore innovative content formats such as brief video segments, narratives, and interactive features. This strategy is instrumental to maintaining audience engagement and ensuring continued enjoyment.

To optimise reach, it is imperative to strategically schedule posts during periods of peak engagement as determined by analytics. The use of trending hashtags and active engagement in viral challenges has been demonstrated to be an effective strategy for enhancing visibility. Moreover, the establishment of partnerships with influencers or social media personalities is advised to achieve more extensive audience reach. A periodic evaluation of analytic data is necessary to measure the success of the strategy and make adjustments based on insights. The development of regional cultural characteristics in the context of information technology advancement can be facilitated by leveraging a robust legal framework to optimise network connections with relevant institutions in an autonomous and impartial manner. (Sunarsa et al., 2020)

Collaborating with social media influencers or content creators who align with the target audience can enhance the credibility and reach of a platform. The incorporation of visually appealing content, such as infographics and brief video segments, is recommended to enhance the program's appeal and to facilitate emotional resonance with the audience. Collaboration with industry experts or thought leaders can facilitate the organisation of live question-and-answer sessions or interviews on topics of relevance. The enhancement of digital literacy among youth constitutes a strategic measure for fostering the evolution of a society that is adept at navigating the digital era. (Alfiani et al., 2024) Conducting sentiment analysis to assess audience sentiment towards various platforms and programs is recommended. The identification of areas for enhancement should be facilitated by recurrent examination of grievances or proposals. Digital literacy is defined as the critical ability to access, understand, evaluate, and create digital content in an ethical and responsible manner. (Alfiani et al., 2024) The creation of a dedicated online group or forum for listeners to discuss programs, share feedback, and build connections between each other and the platform is recommended. Empowering communities through digital literacy requires collaboration among government entities, educational institutions, private sector entities, and civil

Society organisations. (Rahayu et al., 2022) Conversations related to specific programs or genres must be monitored continuously to identify trending topics and trends. The provision of relevant educational content to local communities through digital media is essential to ensure an accurate understanding and prevent the spread of misinformation. (Rahayu et al., 2022)

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The enhancement of digital literacy among youth is a strategic measure for fostering the evolution of a society that is adept at navigating the digital era. (Alfiani et al., 2024) Conducting sentiment analysis to assess audience sentiment towards various platforms and programs is recommended. The identification of areas for enhancement should be facilitated by recurrent examination of grievances or proposals. Digital literacy is defined as the critical ability to access, understand, evaluate, and create digital content in an ethical and responsible manner. (Alfiani et al., 2024) The creation of a dedicated online group or forum for listeners to discuss programs, share feedback, and build connections between each other and the platform is recommended. Empowering communities through digital literacy requires collaboration among government entities, educational institutions, private sector entities, and civil society organisations. (Rahayu et al., 2022) Conversations related to specific programs or genres must be monitored continuously to identify trending topics and trends. The provision of relevant educational content to local communities through digital media is essential to ensure an accurate understanding and prevent the spread of misinformation. (Rahayu et al., 2022)

Information dissemination has become remarkably accessible in contemporary digital landscapes. This is because of the pervasive influence of digital media, which facilitates seamless interaction and knowledge exchange among users. (Rahayu et al., 2022) The pervasive presence of information sources in the digital era is an inevitable consequence of technological advancements. (Alfiani et al., 2024) (Rahayu et al., 2022) The utilization of podcast episodes as a medium for learning and literacy has been explored. (Dhamayanti, 2022) In the context of the Coronavirus disease pandemic, podcasts have been demonstrated to serve as a complementary educational resource to digital learning media platforms such as Zoom, Google Meet, and Microsoft Teams, which are frequently utilized in instructional activities. (Dhamayanti (2022) (Alfiani et al. (2024). Podcasts offer a degree of flexibility that allows them to be accessed at times and in locations not conducive to other forms of media. (Dhamayanti, 2022) It is imperative to regularly assess a variety of content types, including live broadcasts and podcast highlights, in addition to marketing strategies, in order to ascertain the most effective approach. Analytical processes are instrumental in evaluating performance and facilitating iterative refinement.

A considerable portion of podcast content is characterised by conversations or dialogues with the objective of imparting information to the audience. (Dhamayanti, 2022) The satisfaction derived from the use of digital media encompasses a diverse array of activities, including research and learning, entertainment, communication, social interaction, alleviation of boredom, and acquisition of information (Rahayu et al. 2022). Media literacy is defined as a set of skills that facilitates the process of accessing, analysing, evaluating, and creating messages in various forms (Choo et al., 2000). According to Dhamayanti (2022) (Rahayu et al. (2022). It is imperative to maintain currency with prevailing subjects and cultural occurrences to generate content that is pertinent and resonant with the target audience. Conducting in-depth analyses of social media data is essential for identifying trends, sentiments, and preferences that influence the perception of OTT radio broadcasts. A comprehensive understanding of the factors that shape public sentiment regarding OTT radio content, including sound quality, program selection, and host interactions, is essential. (Dhamayanti, 2022) (Alfiani et al., 2024) (Rahayu et al. 2022) Natural language processing techniques have been employed to analyse comments, reviews, and



Feedback to unearth latent emotions and opinions regarding the various aspects of OTT radio platforms. (Alfiani et al. 2024) The radio, in its capacity as a mass medium, is subject to perpetual developments that engender interest among its users in both listening to and possessing it. Zahri and Makmuri (2019) stated the following.

By integrating these strategies with consistent monitoring and adaptation, OTT radio broadcasters can enhance their relationship with audiences, increase their satisfaction, and encourage long-term loyalty. During the pandemic, technology played a crucial role in maintaining people's activities during times of large-scale social restrictions. (Komalasari, 2020)

OTT radio broadcasters can utilise various Key Performance Indicators (KPIs) to establish a framework for evaluating content performance and audience engagement.

1. Audience metrics The number of unique listeners, average listening time, and program completion rate were used to assess the popularity of the content. (Panda et al., 2023) and
2. Engagement metrics: Engagement metrics entail monitoring interactions on social media platforms, including likes, shares, comments, and other forms of engagement to measure audience engagement. (Trunfio & Rossi, 2021)
3. Sentiment analysis: These tools are utilised to ascertain the prevailing sentiment within audience feedback, thereby identifying the areas of satisfaction and dissatisfaction.

Social media platforms offer an enhanced experience for audiences, which is becoming increasingly desirable for participation opportunities, such as voting, discussions, social networking, entertainment services, on-demand programs and videos, and interacting and contributing to media content. In response to these developments, radio stations have adopted strategies to disseminate broadcast content via social media, with a focus on adapting to technological developments and changes in consumer behaviour. (Arief, 2019) In addition to its role in providing entertainment and information, radio Local Public Broadcasting Institutions play a strategic role in the development of regional cultural characteristics. Digital literacy has emerged as a pivotal solution to mitigate the adverse effects of rapid advancements in information technology. (Sunarsa et al. 2020) Consequently, the implementation of suitable policies and strategies is imperative for effective management of radio broadcasting entities. Radio broadcasting has the capacity to serve as a public medium, one of its primary functions being to address the needs and interests of its listeners to the greatest extent possible. (Giri and Ardana, 2021)

Fourth, the identification of salient patterns and trends in audience engagement with OTT radio through interactions and sentiments on social media. A review of audience feedback reveals that positive sentiments are often associated with features such as ease of access, variety of content, and personalised recommendations. In contrast, negative sentiments are frequently linked to technical issues, subscription fees, and perceived lack of variety in programming. Tools such as VADER, TextBlob, or lexicon-based analysis can be employed to extract sentiments from audience comments or posts. By analysing social media data, OTT radio broadcasters can gain valuable insights into audience preferences, emerging trends, and potential issues. By adapting to audience preferences and keeping up with emerging trends, radio stations can ensure continued relevance and attractiveness to listeners. To this end, radio stations would be well advised to innovate by leveraging new media or social media, which are currently ubiquitous in the public sphere. Radio has the capacity to disseminate information at a high speed. In addition to the rapid dissemination of information, radio offers unparalleled accessibility and transcends spatial and temporal constraints.

(Wilantari, 2019) The implementation of listener segmentation, a process that entails the identification of distinct audience niches based on demographics, psychographics, and listening behaviour, is paramount. The personalisation of content and recommendations is paramount for addressing the distinct interests and preferences of each listener segment. (Dhamayanti, 2022) The creation of targeted content and promotional messages that resonate with each listener segment is a strategy that has been demonstrated to increase engagement and loyalty. Posts pertaining to special events, promotions, or live interactions (e.g. live sessions) frequently elicit high levels of engagement. (engagement metrics). Voting, polls, or requests for suggestions frequently garner the attention of a greater number of users and enhance interactions (audience participation). Analysis of the most shared, liked, or commented content can facilitate the identification of themes and topics that resonate with the audience. The role of social media in modern journalism is twofold: first, it facilitates rapid news dissemination, and second, it allows journalists to interact with the public in real-time. (Rahmalia & Muzakkir, 2022)

This study conducts an exhaustive examination of the factors that shape public sentiment regarding over-the-top (OTT) radio content. This analysis delves into the impact of variables such as sound quality, program selection, and host interaction on public perception. (Dhamayanti, 2022) A comprehensive social media data analysis, the identification of key trends and patterns, the implementation of changes based on insights, and continuous monitoring of performance are all strategies that OTT radio broadcasters can implement to improve their audience experience, increase engagement, and build strong relationships with their listeners. (Dhamayanti, 2022) A high degree of audience preference has been demonstrated for specific genres, including story-based podcasts, exclusive music programs, and discussions of current trends. The utilisation of popular keywords and hashtags, such as #PodcastFavourite and #RadioLive, offers insight into the preferred content genre. A notable observation is the tendency of younger people to exhibit heightened engagement with contemporary and fashionable content. In contrast, older audiences demonstrate a propensity to prioritise informative programming. Local trends have been shown to influence the popularity of certain programs such as broadcasts in regional languages. Furthermore, audience activities often exhibit peak periods such as mornings during commutes or evenings during periods of relaxation. Holidays and special events have been observed to increase engagement with specific programmes. Viral content, characterised by its humorous or inspirational nature, has been observed to substantially enhance the visibility of over-the-top (OTT) radio platforms.

The integration of social media challenges and interactive hashtags has been shown to generate additional enthusiasm among viewers. Audience comments and reviews can reveal preferences regarding specific formats, topics, or even program hosts. Recurrence of complaints can be indicative of areas that require enhancement. Fan groups or forums on social media platforms offer insights into collective interaction trends, where audiences share perspectives or engage in discussions on a particular program. A meticulous examination of these trends facilitates the refinement of content strategies, scheduling of posts, and optimisation of interaction methods, thereby enhancing visibility and engagement. Radio broadcasting stations play a pivotal role in providing entertainment and relevant information as well as introducing cultural values and local wisdom. They also serve to bridge local public interests and positively contribute to local governments. (Sunarsa et al. 2020). The utilisation of a robust legal foundation is imperative to ensure the optimisation of networking with affiliated institutions in an autonomous and impartial manner. This approach is crucial for fostering the development of a regional cultural identity in the context of information technology advancement. (Sunarsa et al. 2020) This approach fostered long-term loyalty. By leveraging these insights, OTT radio broadcasters can enhance their understanding of their audiences, customise their content, and increase their user engagement and satisfaction.

## V. CONCLUSION

Social media has emerged as a catalyst and tool for over-the-top (OTT) radio broadcasters to expand their reach and increase their popularity. Social media offers unparalleled opportunities for global engagement, personalisation, and connectivity while presenting challenges that necessitate strategic navigation. Social media analytics tools have been demonstrated to be highly effective in assessing audience behaviour, preferences, and feedback for over-the-top (OTT) radio broadcasts. These tools enable broadcasters to make informed decisions, increase audience engagement, and maintain competitiveness in the digital media landscape. However, the efficacy of these tools is contingent on their proper implementation, skilled analysis, and ethical considerations. In conclusion, this research has demonstrated a significant convergence between OTT radio and social media, highlighting the transformative impact of big data on the broadcasting industry. Future research endeavours should explore the potential of integrating advanced analytics and machine learning techniques to further enhance the synergy between OTT radio and social media platforms.

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