

From Airwaves to the Cloud: Podcasts Surpassing Traditional Radio

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ABSTRACT

With advances in media technology, podcasts have surpassed traditional radio to become a significant phenomenon in communication. Research indicates that conventional radio, constrained by linear broadcasting, signal coverage limitations and standardised processes, exhibits notable shortcomings in listening scenarios, content creation and user interaction. In contrast, podcasts leverage on-demand accessibility and cross-scenario adaptability to transcend temporal and spatial constraints. They enhance user experience through fragmented listening and replay functionality, cater to niche audiences via specialised programming and UGC models, and bolster user retention through community-driven operations and personalised services. Consequently, their communicative efficacy is increasingly evident.

KEYWORDS

Podcasts; Traditional radio; Media communication

1 Introduction

Amidst the wave of media technology iteration, audio broadcasting has undergone a profound transformation from "unidirectional transmission" to "bidirectional flow". Traditional radio, built upon a broadcast system reliant on radio waves, once served as the primary channel for the public to access information and entertainment due to its immediacy and extensive coverage. However, it has always been constrained by the temporal shackles of "linear broadcasting" and the spatial limitations of "signal coverage." Issues such as passive reception by listeners, restricted creative agency for producers, and the absence of interactive scenarios have gradually become more pronounced.

Traditional broadcasting, under the impact and impetus of new technologies and media platforms, continually seeks transformation to adapt to shifts in the media ecosystem. The most recent evolution is the podcast, born in the internet era ^[1]. Podcasting has broken this impasse through its "cloud storage + on-demand listening" model. It has not only restructured the production, distribution, and consumption logic of audio content but also achieved a breakthrough surpassing traditional radio in terms of dissemination dimensions, creative ecosystems, and audience relationships. This paper examines how podcasting propels audio media from the "radio wave era" into the "cloud era" through three core dimensions: overcoming temporal and spatial constraints, liberating creative space, and deepening interactive relationships. It offers insights into understanding audio communication transformation within the context of media convergence.

2 Podcasts break free from traditional radio's spatial and temporal constraints

2.1 Linear broadcasting and signal dependency in traditional radio

As the audio representative of the electronic media era, traditional radio has always been constrained by the dual limitations of linear broadcasting and signal dependency. This characteristic, while an advantage in its early days for mass coverage, has become a formidable barrier to communication in the digital age. From a temporal perspective, traditional radio programming strictly adheres to schedules, requiring listeners to tune in at specific times to access particular content—such as morning news, lunchtime music, or evening talk shows. Once a broadcast period passes, the content becomes irretrievable. This time-bound model fundamentally stems from the finite nature of media resources: against the backdrop of scarce FM and AM frequency bands, radio stations must employ linear scheduling to maximise spectrum efficiency. However, this approach places complete control over listening in the hands of the broadcaster, disregarding listeners' individualised time requirements arising from differing work and lifestyle rhythms. For instance, office workers may miss the 7am news bulletin, while students struggle to tune in to educational programmes at 10pm. This media-driven temporal logic has gradually eroded traditional radio's user retention in today's fast-paced society.

From a spatial perspective, the transmission range of traditional radio stations is entirely dependent on the coverage radius of radio wave signals, with signal strength significantly influenced by factors such as transmission power and geographical environment. Within urban centres, FM signals typically remain stable; however, in suburban, mountainous, and remote rural areas, signal attenuation or complete loss is exceedingly common, preventing listeners in these regions from receiving broadcasts reliably. This spatial limitation is fundamentally determined by the physical properties of radio

wave propagation—waves cannot penetrate geographical barriers or spatial obstructions, and traditional radio lacks the capacity to extend its signal across regions or spaces. For instance, Beijing People's Radio Station's FM signal struggles to reach remote counties in Shandong, while Shanghai Oriental Radio's programming cannot directly reach listeners in western provinces. This geographically fragmented transmission landscape prevents traditional radio from establishing a unified national audience market, let alone meeting users' demand for continuous listening during mobile scenarios. With the proliferation of mobile devices such as smartphones and tablets, listeners' consumption scenarios have expanded beyond fixed locations at home to diverse settings including commuting, exercise, and workplaces. The signal dependency inherent in traditional radio makes its spatial adaptability in the mobile internet era significantly inferior to that of emerging audio formats like podcasts.

2.2 Podcasts' on-demand access and universal compatibility

Through cloud storage and on-demand playback, podcasts have fundamentally overturned traditional radio's time-bound listening model, placing complete control over audio consumption back in the hands of users. Traditional broadcasting emphasises immediacy, whereas podcasting prioritises autonomy; the conventional model is "you speak, I listen," while podcasting enables "listening to what I want, when I want," and even facilitates "you listen, I speak."^[2] Podcast users can catch up on the previous night's news updates during their commute, select light lifestyle programmes during lunch breaks, revisit classic story collections during sleepless nights, or even binge-listen to entire knowledge series over the weekend. This characteristic perfectly aligns with modern society's fragmented and personalised time demands. For instance, students need not miss evening radio lectures due to late-night study sessions, while professionals can utilise their 20-minute commute to listen to industry analysis podcasts. This truly empowers users to decide "what to listen to and when to listen to it".

In terms of spatial coverage, podcasts have completely broken free from the constraints of radio waves by leveraging mobile internet, achieving seamless adaptation across all scenarios. Whether in traditional radio signal dead zones like underground stations or lifts, or in areas where radio waves struggle to reach such as suburbs and mountainous regions, users can enjoy stable podcast playback as long as their device is connected to the internet. Compatibility with smart speakers and in-car systems further extends podcasts into diverse scenarios like cooking in the kitchen, commuting by car, or outdoor fitness activities. For instance, travellers abroad can access domestic cultural podcasts offline without relying on local radio signals. Sports enthusiasts running outdoors needn't worry about traditional radio interruptions – simply connect Bluetooth headphones to enjoy uninterrupted music podcasts. This boundary-free listening experience truly integrates podcasts into users' daily routines, achieving a level of scenario coverage unattainable by traditional radio.

2.3 The advantages of fragmented listening and replayability in podcasts

Podcasts' adaptability to fragmented listening precisely aligns with modern users' scattered time resources, forming one of their core competitive advantages over traditional radio. Most podcasts adopt a structure of "single-episode independent themes + 15-60 minute duration". This ensures the completeness of each episode while flexibly accommodating varying lengths of fragmented time: a five-minute lift wait allows for a quick news podcast, a twenty-minute commute can cover a lifestyle discussion episode, and a thirty-minute lunch break permits immersion in a narrative piece. In contrast, traditional radio typically broadcasts in linear, 1-2 hour segments laden with advertisements and transitional segments. Listeners with only fragmented time often cannot access complete information, and may even abandon listening entirely upon missing key content. For instance, the short-trip specials of "Daily Talk Park" and the concise opinion segments of "Left and Right" have become go-to choices for users seeking to recharge or unwind during fragmented moments, thanks to their compact duration and self-contained themes.

The replayability of podcasts enables quality content to transcend the limitations of one-off consumption, maximising its value. For knowledge-based podcasts, repeated listening serves as a vital pathway for users to deepen their understanding. Take the financial podcast 'Business Is Like This', for instance: its analysis of industry trends allows listeners to grasp core insights upon first hearing, while subsequent replays enable them to organise logical frameworks and capture detailed data. For language learning podcasts like Good Morning English, repeated listening aids pronunciation imitation and sentence pattern memorisation through oral instruction content. In emotional or narrative podcasts, revisiting episodes yields fresh emotional resonance—take the youth reminiscences in The Zhi Xing Tavern, where listeners gain new insights upon replay depending on their state of mind. Traditional radio broadcasts, however, cannot be revisited once aired, causing the value of quality content to diminish over time. In contrast, podcasts' replay mechanism not only extends content lifecycles but also generates a long-tail dissemination effect through repeated listening and sharing, thereby amplifying content influence.

3 Podcasting unleashes more dynamic creative space

3.1 Standardised workflows and mass-oriented constraints in radio broadcasting

As a linear medium, traditional radio operates within standardised processes, with content production and broadcast delivery strictly adhering to industry regulations and timeframes. Regarding content review, radio stations undergo multi-tiered processes including topic proposal submissions, manuscript vetting, and final approval, with each stage requiring compliance with public broadcasting regulations. This imposes systemic constraints on content creation from its inception. For instance, news programmes must strictly adhere to fact-checking standards, while entertainment shows must avoid sensitive topics and controversial expressions. While this standardisation ensures transmission safety, it also restricts creators' creative autonomy.

From an audience perspective, radio prioritises mass appeal as its core objective, aiming to reach the broadest possible listener base. This inherent characteristic dictates that content must align with mainstream tastes and universal interests. To boost ratings, stations frequently gravitate towards universally accessible topics such as social hotspots, popular entertainment, and lifestyle services – including news bulletins, music charts, and advice helplines. While such content satisfies the fundamental needs of the majority, it struggles to accommodate the personalised preferences of niche audiences. Furthermore, radio operates within fixed broadcast schedules and limited frequency resources. Individual programmes must convey information within prescribed timeframes, preventing in-depth exploration of niche content. Consequently, creative output remains confined to superficial common ground, struggling to transcend the boundaries of mass appeal while offering creators little scope to explore specialised domains.

3.2 Verticalisation of podcast topics and diverse expressions

Leveraging the flexibility of internet dissemination, podcasts have entirely transcended the thematic constraints of traditional media, carving out entirely new content avenues with vertical specialisation as their defining characteristic. Unlike radio's broad-appeal topics, podcasts need not pursue mass audience reach but instead focus on specific demands within niche domains. From "hardcore technology" and "fringe cultures" to "specialist academia" and "lifestyle", each vertical field can generate high-quality content. For instance, technology podcasts may delve into "AI algorithm optimisation" or "quantum computing applications," while cultural podcasts might meticulously explore "the preservation of local intangible cultural heritage" or "the survival status of independent bookshops." Though such topics may have relatively niche audiences, they precisely target users with deep-seated interests in these fields, cultivating highly loyal listener communities.

In terms of expression, podcasts' diverse formats grant creators considerable freedom. Unlike radio's one-way broadcasts or fixed interview structures, podcasts can adopt various forms such as monologues, duets, roundtable discussions, or dramatisations. They may even incorporate sound effects, music, or field recordings to enhance immersion. For instance, historical podcasts may employ simulated period soundscapes to transport listeners to specific eras, while workplace-focused shows might feature impromptu conversations with professionals across industries to reveal authentic workplace dynamics. This diversity of expression not only imbues content with greater personality and vitality but also allows creators to fully realise their individual styles. Whether employing humour and banter, in-depth analysis, or heartfelt storytelling, podcasts offer a suitable medium for presentation, free from the constraints of standardised communication frameworks.

3.3 Podcasts' UGC model and niche demand coverage

The user-generated content (UGC) model in podcasting has drastically lowered the barriers to content creation, transforming ordinary listeners into creators. This model provides the core support for catering to niche demands. Unlike the professional production teams required by radio, podcasting fulfils the "four zeros" criteria—zero technical expertise, zero costs, zero editing, and zero formal requirements—thus achieving a "zero entry barrier". Becoming a podcaster requires no extensive digital knowledge, mastery of sophisticated technology, server space rental, or complex software suites. It relies entirely on user-friendly tools. Without needing to purchase transmission towers, one can establish their own "low-cost" radio station using merely an internet-connected computer and a microphone ^[3]. This user-generated content precisely targets niche areas that professional media struggle to cover.

The core value of the UGC model lies in its ability to accurately identify and deeply satisfy niche demands. Within traditional media, niche audiences' demands are often overlooked due to their small size and low commercial value. Podcast UGC, however, operates purely on interest-driven principles, free from considerations of commercial returns or mass appeal. For instance, topics like niche instrument performances or regional dialect preservation may not attract large audiences, yet they gather a core group of like-minded users, fostering a tightly-knit community atmosphere. These UGC podcasts not only provide platforms for niche groups to express themselves and interact but also enable the

dissemination and preservation of niche cultures. Simultaneously, the diversity of UGC content enriches the podcast ecosystem, liberating it from the confines of professional creators' perspectives. Instead, it flourishes in a vibrant, multifaceted landscape where voices speak their truth, project their unique perspectives, and shine with their own distinct brilliance. This is the very essence of podcasting's appeal. As one netizen remarked: "We reject the manner of speech in traditional broadcasting; podcasting has granted us a liberated form of expression." The advent of podcasting empowers anyone to upload their own audio or video programmes online for sharing, while also enabling the selection or download of others' original content ^[4]. This truly achieves the communicative effect of "everyone can create, everyone can find their kindred spirits".

4 Podcasts foster deeper interactive relationships

4.1 Radio's limited interaction and weak user retention

As a linear broadcast medium, traditional radio inherently possesses interactive limitations, struggling to establish profound connections with users and ultimately resulting in weak user retention. From a transmission perspective, radio adheres to a one-way output logic. Programmes are broadcast according to fixed schedules, leaving listeners to passively receive content. They cannot independently choose listening times or programme segments, nor can they pause, replay, or redistribute content. This "I broadcast, you listen" model directly cuts off users' pathways for active participation.

Regarding interactive formats, traditional radio relies on extremely limited methods, primarily phone-in requests and text message messages, which suffer from significant delays and filtering. Listener submissions undergo selection by producers, with only a fraction mentioned on air. Consequently, most users' interactive needs receive no immediate response. Furthermore, this interaction lacks continuity. Users rarely receive follow-up feedback after sending messages, preventing meaningful dialogue and often confining engagement to one-off attempts.

Regarding user retention, traditional radio relies on situational accompaniment rather than content affinity. Listeners may tune in for background noise while driving or doing chores, but abandon the station once the context disappears (e.g., reaching their destination or completing tasks). Moreover, radio cannot record listeners' preferences, nor can it offer personalised content recommendations tailored to individual needs. Users struggle to find exclusive emotional or informational value within programmes, ultimately leading to high audience turnover and a lack of a stable, long-term core listener base.

4.2 Interactive feedback and community-based operation in podcasting

Unlike traditional radio, podcasting leverages the advantages of digital platforms to establish a model of "two-way interaction + community-based operation". Under this model, audiences are no longer passive recipients and consumers of media content, but rather selectors of media content, as well as active participants and creators of content. Podcasting has eliminated the boundaries between media and audiences ^[5], effectively dismantling communication barriers while enhancing users' sense of belonging and participation. Regarding interactive feedback, podcasts achieve "real-time" and "end-to-end" coverage. Users may express views directly via comment sections or bullet screens, enabling hosts to address them in subsequent episodes, forming a closed-loop "user query-host response" system. Some podcasts further facilitate deep user involvement through mechanisms like topic polls, inviting listeners to contribute life stories as programme material or vote on future discussion themes. This co-creation model transforms users from passive observers into active participants.

Regarding community-driven operations, podcasts establish dedicated communities to gather dispersed users into interest-based circles. These communities not only synchronise programme updates but also organise offline salons and online live-streamed sharing sessions, facilitating multi-dimensional interactions between users and hosts, as well as among users themselves. For instance, knowledge-based podcasts initiate themed discussions where listeners share learning insights, while relationship-focused podcasts host story-sharing sessions enabling users to exchange personal experiences within a supportive environment. This community-driven approach not only extends user engagement cycles but also fosters emotional resonance within groups. It creates a virtuous cycle of "listening to podcasts → joining communities → participating in activities," significantly enhancing user retention.

4.3 Personalised services and emotional resonance in podcasting

Leveraging technological advantages and content characteristics, podcasting precisely addresses user needs through personalised services while forging deep connections via emotional resonance—a core competitive edge distinguishing it from traditional radio. Regarding personalisation, podcast platforms employ algorithmic technology to deliver bespoke content recommendations. Platforms analyse user preferences based on listening duration, favourites lists, and skip

behaviour. For instance, history enthusiasts receive humanities and history podcasts, while career-focused listeners are served professional development content. Furthermore, podcasts support fragmented listening, allowing users to flexibly choose individual episodes or segments based on their time, and even adjust playback speed. This user-centric service model fosters a sense of respect, significantly enhancing the comfort of content consumption.

On an emotional resonance level, podcasts centre on companionship, connecting with listeners through relatable content and authentic delivery. Unlike the distance of traditional radio presenters, podcast hosts often converse with audiences as friends, employing relaxed, natural language styles. Content frequently revolves around listeners' real lives—discussing workplace anxieties, rental woes, familial relationships—allowing users to see reflections of themselves within the programmes. Some podcasts invite ordinary listeners to share personal experiences. This blend of authentic narratives and emotional expression fosters a profound sense of connection, making users feel understood. Late-night podcasts, in particular, offer gentle voices and soothing content that serve as a comforting companion for many, alleviating loneliness. This emotional bond transcends mere information delivery, cementing podcasts as an indispensable part of listeners' lives.

5 Conclusion

During the early days of podcasting, debates and concerns about "podcasts replacing traditional radio" permeated the online world. Some netizens believed podcasts would inevitably and should replace traditional broadcast media in the near future. Yet a significant number of netizens and researchers countered that while podcasts exhibited many novel characteristics distinct from traditional broadcast media, just as radio did not replace newspapers, television did not replace radio, and the internet did not replace television, podcasts could not replace broadcast media. These two viewpoints persist in the online world to this day, and this debate will continue. To Hell with All Broadcasting" — Examining China's Podcast and Radio Development Prospects Through the Lens of "Anti-Wave" ^[6].

When podcasting dismantled the temporal and spatial barriers of traditional radio through its "anytime, anywhere" accessibility, revitalised audio content innovation via its "low-barrier creation and diverse expression" ecosystem, and when its "community-driven operations and deepened connections" model reconfigured the interactive relationship between broadcasters and audiences, its transcendence of traditional radio represented not merely a technological iteration but a profound shift in media philosophy—from "mass communication" to "personalised communication".

Though traditional radio retains irreplaceable strengths in real-time news and emergency broadcasting, podcasts' user-centric logic has charted the course for audio media's future: shifting from "content delivery" to "relationship building," and from "meeting common needs" to "serving personalised experiences." Moving forward, these two forms will not exist in an either-or substitution relationship. Instead, through media convergence, they will mutually learn from and complement each other, coexisting to propel the audio communication sphere towards a more dynamic and profound new landscape. Research into this process of transcendence also provides crucial case studies and insights into how media technologies reshape communication ecosystems and influence cultural production.

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