Cross-media radio and hybrid radio: the new way to inform and entertain yourself on the digital stage

Radio cross-media y radio híbrida: la nueva forma de informarse y entretenerse en el escenario digital

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ABSTRACT

Introduction: The Internet has transformed the media landscape and digital radio is an example of how such changes have impacted the structures of the different media. Since the late 20th century, digital radio has coexisted with wave radio, but online broadcasts have an increasing presence. **Methodology:** First, we conducted a literature review on the scientific research published since the beginning of digitalization to identify the items that shaped the evolution of current radio. Then, we completed the analysis by consulting expert reports and audience data from the EGM. **Results:** The new scenario, which has a multimedia and transmedia dimension, is characterized by formats, languages, and contents that widely differ from traditional ones. Mobile devices have made it possible to approach new sectors of the audience to respond to new consumption habits thanks to streaming and podcasting, which

modified the forms of access to content. In this multiplatform context, it is necessary to redefine what radio is. The audience is immersed in a process of constant change and content has to be adapted to the needs of the users (cross-media). **Discussion and conclusions:** The new listening habits generated by media convergence require rethinking the way of measuring radio consumption, both in conventional stations and online platforms, to better understand the needs of citizens and give them an adequate response. It is also urgent to adapt professional profiles to the current reality.

KEYWORDS: Radio crossmedia; Radio transmedia; Radio digital; Radio híbrida; PostRadio; Podcast; Webradio.

RESUMEN
Introducción: Internet ha transformado el escenario mediático y la radio digital es un ejemplo de cómo han afectado los cambios a las estructuras de los diferentes soportes. Desde finales del siglo XX la radio digital convive con la radio por ondas, pero cada vez tienen más presencia las emisiones *online*. **Metodología:** Primero realizamos una revisión de las investigaciones publicadas desde que se inició el proceso de digitalización para identificar los ítems que influyeron en la evolución de la radio actual. Y después completamos el análisis con la consulta de informes de expertos y los datos de audiencia del EGM. **Resultados:** El nuevo escenario, que tiene una dimensión multimedia y transmedia, se caracteriza por unos formatos, lenguajes y contenidos muy diferentes a los tradicionales. Los dispositivos móviles han permitido acercarse a nuevos sectores de la audiencia para dar respuesta a los nuevos hábitos de consumo gracias al *streaming* y al *podcasting*, que modificaron las formas de acceso a los contenidos. En este contexto multiplataforma es necesario redefinir qué es radio. La audiencia está inmersa en un proceso de cambio constante y los contenidos tienen que adaptarse a las necesidades de los usuarios (*cross-media*). **Discusión y conclusiones:** Los nuevos hábitos de escucha que genera la convergencia mediática exigen repensar la forma de medir el consumo radiofónico, tanto en las emisoras convencionales como en las plataformas *online*, para conocer mejor las necesidades de los ciudadanos y darles una respuesta adecuada. Y también urge adaptar los perfiles profesionales a la realidad actual.

PALABRAS CLAVE:
Radio cross-media; Radio transmedia; Radio digital; Radio híbrida; PostRadio; Podcast; Web radio.

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1. Introduction

Research works on radio's evolution in the last two decades show the many changes it has undergone to adapt to the current reality, drastic changes that even affect its identity, but that are necessary to survive in a media scenario characterized by constant renewal and unpredictable renovation (Pedrero-Esteban and García-Lastra, 2019). The observations of the experts who have expanded the scientific literature on the radio of the 21st century allow us to verify the achievements made, but also remind us of the many pending challenges (Díaz-Noci, 2019; Pereira, 2020), of which we highlight the transformation of classic structures of the media, the new user behavior guidelines, which affect both information and entertainment, the rupture of the logics that regulated communication in the 20th century as a consequence of the new production, diffusion, and consumption models established in the 21st century, and, above all, the transformation of broadcasting structures, previously in the hands of professional communication companies and now controlled by technology companies and users. Audience data is consistent with scientific work and confirms a changing and constantly evolving media reality (Rodríguez-Vázquez et al., 2018). At the same time, radio needs to find its place to maintain its identity and the ability to compete with other media and on different platforms (Moreno-Felices et al., 2021).

We focused this analysis on technology, new formats, new languages, audience participation, and new ways of accessing and consuming content because we believe that these are the elements that best characterize digital radio and differentiate it the most from conventional radio (Ortiz-Sobrino, 2012).

The most important changes began with the hybridization process when the classic media took on characteristics and functions of other media and thus lost part of their original identity (Ortiz-Sobrino, 2017). Hybridization and digitization have generated new formats and new languages, and new forms of access to content have also emerged, which multiplied the possibilities of consuming information and entertainment (González-Conde and Salgado-Santamaría, 2009; Cabrera-García-Ochoa, 2019; López-Vidales and Gómez-Rubio, 2014; Soengas-Pérez et al., 2019). Another of the peculiarities is that the changes, in most cases, took place at a dizzying pace, driven by the urgent need to offer citizens innovative proposals to compete in a context full of opportunities, but with ever-increasing competition.

Digital convergence occurs in a context characterized by the redefinition of the classic functions of the media and the constant evolution of the audience (Soengas-Pérez, 2013). And these circumstances decisively condition the new programming models, particularly formats and languages, which must adapt to a media reality where citizen participation is increasingly present (Barranquero-Carretero and Martínez-Martín, 2021). Now, the media scenario is totally different from that of the last century because the contexts also differ and radio has to adapt to new social dynamics and ways of relating to citizens. Listeners are no longer satisfied with consuming information (Moreno-Moreno et al., 2017), but actively participate in the construction of the programming, with alternative proposals, and become protagonists. Now the contents are not only provided by professionals, but also by citizens, who acquire a more active role in the communication process (Martínez-Costa-Pérez and Herrera-Damas, 2007; Ribes et al., 2015).

For this reason, it is essential to recognize that technology is more than a tool because it allows exploring new narrative formulas (Peñafiel, 2016), where audience participation plays a relevant role (Piñeiro-Otero and Videla-Rodríguez, 2013; Rodríguez et al., 2021). Furthermore, it favored a new scenario, which is still in constant evolution today, and it's in this context that digital radio appears. Technology caused a transversal impact on the entire media ecosystem. At the same time, consumption habits (López-Vidales and Gómez-Rubio, 2014; Santos-Díez and Pérez-Dasilva, 2016; Pedrero-Esteban et al., 2019) and the content offers made from the different platforms, determine each other.

The arrival of the Internet revolutionized the structures of editorial offices, production models, and forms of access and content consumption. The possibilities offered by the Internet make it necessary to redefine concepts such as competition and current affairs, two standards that were agreed upon in traditional radio and that served to determine the characteristics of each station and the validity of the contents. Moreover, the evolution of audiences, increasingly fragmented and segmented (Rodríguez-Vázquez et al., 2018), also requires a response from programmers and digital platforms (Bonet and Sellas, 2019). In this context, radio faces new experiences and new challenges every day. Now, broadcasters also offer images and listeners can access content stored in platform repositories. This possibility is a very important qualitative leap because it completely changes the conditions of the programming, which were based, above all, on punctual timing and a single broadcast. Furthermore, the conditions now exist to recover fiction.

Digitization caused a radical change in company structures that affected work protocols and the relationship with listeners. The changes that arose forced radio stations to transform, but the adaptation to the new reality was progressive and, in many cases, the transition processes involved significant sacrifices (Díaz-Noci, 2019).

The digitization of radio implies a modernization that transcends the journalistic field because it also influences content treatment and the form of access and consumption, two aspects that have sociological implications because they affect the daily behavior of listeners from the moment they make up a new media reality (Moreno-Felices et al., 2021). In fact, with *online* broadcasts, listening manners and habits change, and a new way of relating to the media is born. Again, throughout this process, the sociological dimension is present, a perspective that must not be forgotten to understand how the new radio space is configured in the convergent scenario (Moreno-Moreno et al., 2017).

One of the greatest achievements of digitization is the reach offered by the Internet (Tan et al., 2019) because the geographical limits that Hertzian waves imposed on traditional broadcasters disappear, and this circumstance makes a new relationship with listeners possible.

As radio through the Internet can be tuned in from anywhere in the world, new segments of audiences with similar interests arise (Piñeiro Otero, 2014; Rodríguez-Vázquez et al., 2018). Also, the conditions now exist for there to be general and permanent citizen participation, something that was previously limited to very specific situations (Barranquero-Carretero and Martínez-Martín, 2021; Piñeiro-Otero and Videla-Rodríguez, 2013). This possibility is one of the factors that makes a substantial difference between conventional radio and digital radio. At the same time, the same technology that makes broadcasts universal allows for the multiplication of content offers, which are increasingly specialized and better adapted to the different sectors of the population, lowers production costs, and simplifies the complexity that characterized traditional broadcasters. Thus, a new virtual connection is created between listeners who have common informational or cultural interests even though they reside in very distant places, which progressively replaces an audience that was identified and related by geographical relations. For this reason, it can be said that the Internet democratized access to content, from two points of view: first, it frees the listener from the stable schedules of programming timetables, something that was later consolidated with the appearance of *podcasts*, (García-Marín, 2020a) and, secondly, as the content offer is greater and more specialized, there is the possibility of choosing the content that best meets the informational or cultural needs of each person.

Digitization also promoted a renewal of formats and language (both are mutually conditioned) to respond to the audience's demands, which are no longer satisfied with traditional proposals. The need for radio to reach new audiences, especially young people, forces it to seek new ways of communicating that allow it to establish an effective connection with citizens, using communication codes that identify the sectors it is interested in reaching with a concrete proposal. And to achieve this complicity, it is necessary to offer new and innovative themes, far removed from predictable and standardized official programming, which prevailed for decades on conventional radio.

2. Objectives

The objective of this research is to analyze the evolution that radio experienced with digitization to find out how the changes that have occurred throughout the information process affected the structure, language, and content offered by the medium. It is also interesting to know how the forms of access and consumption of information changed in the new digital scenario, characterized by the presence of platforms that, thanks to the Internet, modified the concepts of topicality and competition. Additionally, we analyze the new codes of the multimedia universe created by ICTs and the use of tools such as web 2.0 and 3.0, where the dividing line between the digital press, radio, television, networks, and the Internet is almost imperceptible. In this context, it is necessary to check how professional profiles have evolved to adapt to the new media reality.

3. Methodology

We used a mixed methodology in this research on digital radio, consistent with the nature of the different sound scenarios and elements that define and integrate the current media landscape. In the first place, we review the scientific literature published in the last 20 years in the main national and international journals in the field of communication and information and we analyze the works carried out by different authors since the process of radio digitization began. We selected this stage because it is the period in which digitization is developed in radio. This theoretical exploration allowed us to identify and catalog a series of items to delimit the aspects that influenced the evolution of the radio, which are those that condition the current scenario and those that mark programming trends. Among the most outstanding are the diversity of broadcast modalities (Hertzian and online), the multimedia content of web radio, the cohabitation of the live broadcast with podcast repositories, the existence of extended radio content through transmedia formats, and the diversification and dissemination of content through the different platforms and media (cross-media dimension). At the same time, the review of the scientific literature helped us to better understand the difficulties that accompanied the digitization process, what the circumstances of the current situation are and the challenges of the future. We use these ideas as a reference to focus the research on and to make the diagnosis of the subject under study.

Once the elements and phases that characterize the digitization process have been identified, we structured the research to carry out an analysis of the different aspects that make up the digital radio scene, to obtain an exhaustive portrait of the current situation.

Besides the qualitative analysis, we also included quantitative aspects related to audience data. Then we carried out a comparative analysis to assess the coexistence of conventional radio on Hertzian waves with digital radio through the Internet, and a longitudinal analysis, which allows us to observe the changes experienced by the structures of the stations, the formats, and the contents until reaching the current radio scene, characterized by a digital multimedia, transmedia, and multiplatform context.

To complete the analysis of the programming, we considered it necessary to observe consumption habits. To do this, we consulted data from the Association for Media Research (AIMC by its acronym in Spanish) and the evolution of audiences from the General Media Study, which serve as an indicator of trends. And we completed the methodology with the consultation of expert reports published in international organizations, such as RAJAR, (*Radio Joint Audience Research*), the official study that measures radio audiences in the United Kingdom and that the Midas survey carries out.

4. Results

4.1. From airwave radio to PostRadio

Radio has changed a lot since the last decade of the 20th century after its union with the Internet and other ICTs (Marta-Lazo et al., 2021). The beginning of the 21st century marks a dividing line and also a turning point from which one of its most important transformation processes begins: the qualitative leap from *offline* broadcasts to an *online* offer (Piñeiro-Otero, 2015). Since then, the migration of content to the *online* environment has led to a new multimedia dimension, something that has generated a greater offer, innovation in the formats, changes in modes of consumption, and the configuration of hybrid radio.

According to Ortiz-Sobrino (2012), in this context, there are already traditional stations that, besides their live broadcasts through the Hertzian wave or *streaming*, make an alternative offer and use their

webs to provide the audience with a repository of content and services with added value: sound archive of the station, *web radio* specific programs, podcast, service agenda, social media, and participation channels.

In the last ten years, mobile devices and multimodal interfaces have favored the appearance of specific multi-platforms for the distribution of sound content, something that has allowed the radio to approach new audience niches and the segmentation of its content. Thus, there has been a convergence of Hertzian radio with digital platforms to respond to listeners' new consumption habits, a scenario where *streaming* and *podcasting* are the main references.

It is a multimedia conception of radio that, from the field of research, the *Groupe de recherches et d'etudes sur la radio (GRER)* has defined as an extension of Hertzian radio. This adaptation of the radio medium to the new technological framework has led to the appearance of what this transnational research group calls *PostRadio*, conceived as a new dimension of the medium and driven by the new technological framework (Ortiz-Sobrino, 2017). But the current convergent media space has not meant, for the time being, the end of traditional Hertzian radio. In fact, the coexistence of Hertzian wave radio programs with other audio content distributed through digital platforms is still a reality.

4.2. From the Hertzian wave to *streaming*: radio reaches the Internet

For the first time in a hundred years, radio "becomes partially dependent on a non-radio infrastructure" (*Department for Digital, Culture, Media & Sport*, 2021, p. 4). And, from the consumer's perspective, it is no longer identified only with a sound message heard through a conventional radio receiver. Furthermore, in the discussion about what the loss of one of its most genuine features supposes, caused by the jump from the Hertzian wave to *streaming* and *podcasting*, is the key to understanding the great transformation undergone by a medium that accompanies millions of people around the world today and still retains its communicative vigor stably.

No date is being set for the death of radio as it was understood in the 20th century, whose most characteristic format in the last fifty years was the *Hertzian* FM, but it is true that when the expert report prepared in 2021 commissioned by the British government points out that "according to current trends, the study concludes that FM will be necessary until at least 2030" (*Department for Digital, Culture, Media & Sport*, 2021, p. 4), it is setting, by default, a close horizon to the beginning of the gradual disappearance of traditional radio.

Internet *streaming* technology was introduced in the mid-nineties with the aim, among others, of listening to audio hosted on a platform without having to download it to the computer or the first IMB or Nokia *smartphones*, thus freeing up valuable space in the limited data store of the digital device, with an added value of great importance: Internet listeners aren´t subjected to the wait imposed by the download because with a simple click they immediately obtain the audiovisual document they want even with slow broadband connections.

The widespread implementation of the MP3 sound compression format since 2004 improved the situation and "led to an intense exchange of sound files via the Internet" (Kischinhevsky et al., 2020, p. 6). The MP3 format allows the storage of more music on the device than the wav format and handles the exchange of files between different listeners more quickly. But continued listening to files in an MP3 format usually leads to a loss of hearing sensitivity. Music consumers know that the sound quality provided by an MP3 file is inferior to wav-formatted digital sound but still gives priority to quantity (the number of files that can be stored or distributed in the same space or time) over quality (frequency range that a sensitive ear can hear). This is how *streaming* radio expands.

But *streaming* technology and *podcasting* were also introduced on the radio with a complementary far-reaching objective: to free the listener from the hourly servitude imposed by the station with the fixed programming grid. So, a different way of listening to radio arises, asynchronous to its broadcast, and this is the great attractiveness of *podcasts* compared to traditional radio (Massarelli and Perrotta, 2006; García-Marín, 2020a): the listener is freed from the rigidity of the time grid, organized by the broadcaster, and manages the listening moment according to their convenience. Since then, the idea that the loss of the other genuine trait of radio's original nature, live listening, has been developing, setting a boundary between what is and what is not radio. In this context, can the content provided by *streaming* platforms such as Spotify (world leader in *streaming* music services), Deezer, Apple Music, SoundCloud, Amazon Music, or Napster be defined as musical radio? Is radio the general sound content, often of radio origin, supplied by platforms such as YouTube, Ivoox, or RTVE Play?

Last.fm was founded in 2002 as an Internet radio station and today it is a great music *playlist*, which recommends songs, much like Spotify. But RAJAR (*Radio Joint Audience Research*), the official study that measures radio audiences in the United Kingdom, jointly funded by the BBC, commercial radio, and the advertising sector, does not consider that Last.fm nor Spotify can be classified as radio. It prefers to classify them as audio-on-demand services (RAJAR, 2015).

RAJAR not only measures the radio audience through different digital devices (computer, DAB radio, digital TV, Tablet, Smartphone, or smart speakers), but through the Midas survey, it also measures the audience throughout the whole audio services spectrum. If the current trend continues, there will come a time when Spotify will become the preferred platform for listening to music, surpassing the audience of live music radio (Onda Media, FM, and DAB Radio). But the report commissioned by the British Government and published on October 21st, 2021, states that "although it is impossible to make totally accurate projections for the future, the conclusion of the study is that live radio will continue to represent more than 50% of the audio listening in the UK in the mid-2030s" (*Department for Digital, Culture, Media & Sport*, 2021, p. 4).

A new digital device is making its way into *streaming* audio consumption: the Smart Speaker, powered by virtual assistants such as Amazon Echo, "which interacts with the user by providing various types of information and content at their request. One of its particularities, which is due to the exceptional achievements in voice recognition, is that it can be activated with any type of verbal register according to the different languages it uses. Amazon Echo is part of the first phase of standardized robotization of a society that will be controlled by artificial intelligence" (Balsebre and Vidal, 2021, pp. 184-185; Bazán-Gil et al., 2021). According to the latest RAJAR Midas study of 2021, 30% of British adults have a smart speaker, which represents 6% of the total audio consumption, but, of the total audio consumed through the smart speaker, 72% corresponds to live radio, compared to 24% of on-demand music consumption (RAJAR, 2021).

The device preferred by the majority of the Spanish population to consume *streaming* services is the mobile phone: citizens listen to the radio through any app provided by the stations, at the same time that they read WhatsApp messages or exchange files. But when it comes to specific content such as sports broadcasts, mainly football, radio as a device outperforms mobile phones (Kantar, 2021): 29% on radio and 26% on mobile phones. And therein lies a peculiarity of live radio, which is an irreplaceable value compared to recorded listening: the impression of reality and the emotional impact caused by participating in the narration of an event at the same time it is happening.

But on-demand radio also has its followers, especially those who want to listen to something again (*listen again*) or recover the broadcast that they did not have the opportunity to listen live (*catch-up radio*). According to the 2021 RAJAR Midas study, the *listen again/catch-up* radio modality already

represents 10% of audio consumption of any category among British listeners, especially significant in those over 55 years of age.

The Internet has incorporated new ways of producing, transmitting, and listening to the radio, but radio listeners continue to participate in a very diverse listening-habits ecosystem that, according to the studies cited, will maintain the peaceful coexistence for some years between conventional radio and *streaming* radio.

4.3. The podcast universe

When the *podcast* appeared in the first decade of the 21st century, there was a reunion with old utopias. It was not just about "a new audio production and distribution platform hosted on the Internet (...), the old radio available on demand" (Madsen, 2009, pp. 1193-1194). The *podcast* was also presented as a new opportunity by betting on a revolutionary communication instrument, altering the unidirectional circuit from one to many. In her historical analysis of the transcendence of the *podcast*, Australian professor Virginia A. Madsen recalls that Apple itself, promoting the podcast through iTunes, spoke of "*Radio Reborn*" (Madsen, 2009, p. 1,198).

The *podcast* universe has also been seen as a return to orality, in tune with the proliferation of oral communications through instant messaging services such as WhatsApp, which launched *push-to-talk* in 2013, thus contributing to greater *audification* on citizens' lives (Ormaechea and Fernández-Delkader, 2019).

In an attempt to better understand the mechanism of the person-machine relationship, the term *audiofication* is related to the theories of Standford University's Communication professor, Clifford Ivar Nass, one of the first to warn about the dangers of intensive multitasking and the decline of face-to-face. Nass defends the communicative power of the voice as an activator of most communicative interactions (Nass & Brave, 2005).

The *podcast* is, in this sense, an instrument at the service of voice-activated people. And also, according to a study carried out by RAJAR Midas in 2019, an antidote to multitasking: "Midas shows us that 89% of *podcast* listenings are a single activity. This means that when I listen to my favorite list of *podcasts*, it is at a time when I want to disconnect, relax, and concentrate on the content I am listening to" (Vasconcelos-Cunha, 2020).

The *podcast* was born at a time of crisis in conventional media and journalistic mediation because new listeners are reluctant to be passive receivers on the digital stage (García-Marín and Aparici, 2018). The format of the radio of the stars (Visiers-Lecanda, 2016), on which the advertising business of Spanish radio rests, does not facilitate the adaptation to the new scenario and the *podcast* appears as an alternative platform.

The crisis of mediation must be contextualized in the context of the great economic crisis of 2008, which comprehensively affected the conventional media (Soengas, 2014). The *podcast* universe arises from the radio's need to seek cheaper programming alternatives and find a younger audience in talk radio (García-Marín, 2020b). The creation of the Podium Podcast platform by Grupo Prisa in 2016 and the cases El Gran Apagón or Negra y Criminal represent this search for cheaper alternatives, but they confirm "the progressive emergence of new actors in a growing market, both due to the volume of its users as well as the investments of advertisers and brands" (Terol-Bolinches et al., 2021, p. 476).

Many researchers defended that the *podcast* is not radio (Primo, 2005), but, later, others such as Bonini (2015), have defined the *podcast* as a means of mass communication, and a renewed form of traditional radio. The *podcast* has ceased to be, in a few years, a DIY Media (*do-it-yourself*) to become a mass commercial medium in the Anglo-Saxon world. "With this combination of new technologies for distribution (*podcasting*) and playback (smartphones), which have intersected with audio-based social networks (Soundcloud, Mixcloud, Spreaker, and Stilcher, merged with Deezer) and new crowdfunding platforms (Kickstarter, Indie Go Go), the foundations have been laid for the creation of an independent market for *podcasting*" (Bonini, 2015, p. 28). For Bonini, the current *podcasting* networks are the renewed version of AT&T and RCA in the origins of radio in the United States.

But for the *podcast*-to-commercial-radio assimilation process to develop, a change in strategy for advertising planning is necessary. Although *crowdfunding* and paid subscriptions are interesting financial channels (Fernández-Sande, 2014), advertising is decisive, but a difficult alternative in the current radio system in Spain. In this sense, the researchers from the Universitat Autònoma de Barcelona, Anna Fajula, Mariluz Barbeito, and Juan-José Perona, wonder to what extent radio advertising "shows signs of evolution and adapts to the new sound reception scenario defined by the digital sound-sphere". The answer they offer in their analysis is not very encouraging: "Radio advertising continues to show no obvious signs of evolution" (Fajula et al., 2021, pp. 404-414).

The truth is that even today, in the *podcast* universe, the utopian vision of the early years coexists with the assimilation to commercial radio that has been verified in the last five years, gaining great visibility thanks to aggregators like TuneIn, or distributors like Spreaker or Stitcher. Because there is an aggregating element that legitimizes them as an alternative to the more conservative radio formats: the concern for innovation and the use of radio language under more creative guidelines, recovering genres such as radio-drama or docudrama, currently almost non-existent in conventional radio. And the promoters of *podcasts* on public radio also have a clear objective: to attract a young audience. This was immediately seen by the British BBC, which introduced the *podcast* in 2004, or the North American NPR, which did the same the following year.

The British Richard Berry (2016), in an interview with Marcelo Kischinhevsky (2020), points out that radio producers have a lot to learn from *podcasters*. The *Limetown podcast*, a six-episode radio drama in its first season (2015) and five episodes in its second (2018), which can now be heard on Spotify, didn't need a radio station to be successful. *Limetown* was presented as the renaissance of radio fiction and served as a springboard to leap into a television series (2019). This is a new strategic dimension of the *podcast*: its low-cost rehearsal function to verify its subsequent viability in video-cinema format. And also, an expression of the transmedia dimension inherent to the *podcast*: in its distribution through different platforms, the podcast can be presented as a combination of audio and video, and can finally become a video-cinematographic series (García-Marín and Appeared, 2020). Thus, the *podcast* is more than just a radio piece.

4.4. Contents for a hybrid radio: *cross-media* radio and *transmedia* radio

In the current digital universe, radio has been forced to redefine its role as a content provider for a multi-media and multi-screen media society (Suing et al., 2020). In this redefinition, streaming programming and podcasting are perhaps the most important innovations, but not the only ones. Researchers such as Pedrero-Esteban et al. (2019) have systematized the role of each of the broadcast media in the radio network of digital convergence. In this sense, they point out that, in the current offer, the Hertzian radio has adopted an informative and accompanying function; web radio is the virtual space in which audio, video, and text coexist; social networks are the platforms for interaction between operators and listeners; and the smartphone is the converging vehicle that interacts or guides the audience towards

consumption through platforms. To this offer, the qualitative leap in the role of social networks in the broadcast of content has been added, as a consequence of the exceptional situation experienced by broadcasters during the Covid-19 pandemic, in 2020 (Montaña-Blasco et al., 2020; Rodero, 2020; Martínez-Martín and López-Pulido, 2020). Amid the confinement stage, radio has taken advantage of the possibilities of broadcasting through social networks, as happened with Radio 3, which used *Instagram Live* to broadcast its morning program *Hoy empieza todo* when the programs teams had to carry out their work from home.

The *cross-media* concept has been used by researchers to describe the possibilities offered by the different media and digital platforms (Hertzian waves, Internet, mobile phones, social networks, DTT, etc.) to transmit radio content, both simultaneously as well as asynchronously through *podcasts*. Thus, any listener can choose to listen to a program via FM or tune in to it via *streaming* on their mobile phone using the station's app, without ruling out the option of downloading it from the *podcast* repository of their web radio. This multicast allows programmers to facilitate radio consumption and better reach audience *targets* that usually listen to the radio through digital devices associated with ICT, as is the case with younger listeners. And the *transmedia* concept alludes to the construction of an immersive experience in which the central format or program of the radio narration reaches extensions and complementary stories on platforms different from the original, to obtain greater participation from the audience. The narration extends and complements through various radio channels, the web, television, digital press, or social networks. In other words, the *transmedia* narrative uses different codes or channels (television, web, blog, radio) to address different aspects of the main story, trying to complementarily exploit the expressive potential of each of the platforms used (García-González, 2013).

4.5. Hybrid and multi-media content for radio

The current multimedia context generated by ICT and the use of web 2.0 and 3.0 tools has created a fourth dimension of traditional media, where the difference between radio, television, digital press, social networks, and the Internet is almost imperceptible (Ortiz- Nephew, 2017). Today's radio has become, just as television and the digital press have done, a hybrid medium where contents and languages that were previously exclusive hallmarks of each one of them coexist. Now, broadcasting through web 2.0 and mobile phones also incorporates video, written communication, or still images, regardless of whether its backbone is made up of audio formats and contents. For this reason, a normalized coexistence is now perceived between conventional airwave radio and the distribution of audio programs and content on other *online* platforms, where the rise of *streaming* and *podcasting* as forms of transmission is seen, to the detriment of Hertzian radio.

In this multimedia architecture, based on a framework of networks that offers the possibility for sound to be distributed in *streaming* through different platforms, the contents become *cross-media* adapting to the user's requirements, who can access them through different terminals such as the *smartphone*, web 2.0, and *social media*, among others (Serna, 2016). And through these terminals, the radio offers its audience audio content, video content, text, and images. Thus, far from the old theories of the 20th century, which valued the specialization of broadcast media, radio and the rest of the media have adopted a model of symbiosis between different media from which a new communicative paradigm emerges, where each medium is configured as a new hybrid medium that is enriched by adopting content from other formats and other forms of expression different from the sound language (Suing et al., 2020).

In parallel, the multiplicity of distribution channels and the hybrid dimension of today's radio make possible a new *transmedia* conception of its story, because the contents use various distribution platforms and admit more than one version on the same topic.

4.6. Beyond the online aspect

After the definitive jump to *online* networks is completed, wave radio is preparing for a new adaptation to not miss the train of emerging technology. The so-called Internet of things, algorithms and the metaverse, will be the new experimentation paths that it will follow in the upcoming years (Rieger, 2022).

Immersive worlds represented one of the possible scenarios for the development of the 3D web by promoting the sensation of being inside the virtual story through representations of the subjects, through avatars that transit three-dimensional environments (Ortiz-Sobrino, 2012). The objective of these immersive scenarios is to generate new models of interaction with listeners and test new ways of experiencing the radio product. Ortiz-Sobrino (2012) cites the broadcast experiences in *Second Life* carried out in the first decade of the 21st century by the British network BBC as an example.

The Korean philosopher Han (2021) has put on the table the overcoming of the paradigm of liquid communication to give way to a new concept, *infomats*, to refer to things and utensils that process information and become transmitters for the user, a reality based on algorithms and Big Data architecture, where the importance of relational marketing is noted. Meanwhile, we are already seeing the early development stages of the *metaverse* as a virtual space where the creation of avatars in *Second Life* and augmented reality will be able to offer totally new immersive experiences for programmers and listeners. Furthermore, brands and the audience will be able to interact in a parallel, more immersive reality, thanks to technology (López-Díez, 2021).

These changes lead to the prelude of a new way of delivering hybrid content and involving the audience with the experiences offered by the sound ecosystem. It will probably be in this context, that the radio will take the next step toward its new redefinition as a means of communication.

4.7. The digitization of newsrooms: impact on production systems and transformation of professional profiles in radio

The digitization of newsrooms forced the redefinition of some radio profession profiles to adapt them to the new media context (López-Vidales and Ortiz-Sobrino, 2011). The incorporation of technology as a comprehensive element of the news process made many functions that were registered in the job catalog of the stations unusable and, at the same time, new needs arose that were not contemplated in the labor schemes of the 20th century (Martínez-García and Navarro-Bosch, 2019).

Since the beginning of the 21st century, the coexistence of traditional job categories (editor, sound technician, and documentary maker) with other emerging profiles linked to the multimedia and convergent dimension of the medium, such as *web radio masters, social media editors*, or the experts in marketing and digital rights management, became common.

The old nomenclatures remained in force for a long time after the digitization process began (Sánchez-García et al., 2015), but the workers who occupied these job categories were increasingly required to be more versatile and skilled to operate with digital tools and the management of ICTs (López-Vidales and Ortiz-Sobrino, 2011).

Nowadays, this coexistence persists and, with traditional nomenclature or with other similar ones, the figures of multimedia writer/editor, *web radio master, social media editor*, and designer of multimedia apps are still present in radio. Now, all these job categories require training for digital performance, to handle the new content production tools and dominate alternative broadcast systems through social networks or digital platforms, such as *Twitch*. In parallel, other professional profiles linked to new areas that were unthinkable in radio two decades ago are also being consolidated, such as traffic analysis and content management in *web radio* (Luzón-Fernández et al., 2017). Other job categories such as programmers and marketing and audience research technicians are redefining their skills. The development of *apps* and the evolution of radio consumption modes have placed these two professional profiles in the spotlight: the first because the algorithms and the automation of consumption data or public preferences (*likes*) require them to redefine their training and programmatic skills; and the latter because the current audience habits, especially the quantification and treatment of digital audio downloads and *streaming* listens are still aspects that have not been researched much.

The hybridization of radio with other communication media, such as social networks or video, requires a multiplatform treatment of its content. Now, it is essential to provide those responsible for the programs with a transmedia versatility that allows them to format and distribute the programmatic ingredients through different platforms (Gómez-Calderón et al., 2017).

Another characteristic of the current radio ecosystem is the symbiosis between content production and technology. According to Ortiz-Sobrino et al. (2021), radio content producers now work as a team with others expressly related to digitization, such as computer technicians and *app* programming experts. The common denominator in all of them is versatility and adaptability to change since radio is a means of communication subjected to permanent technological impacts on its production and broadcast system.

In the short term, next-generation telephony, the Internet of things, or the augmented reality of the metaverse will also require new radio professionals, such as *metaverse storytellers* or immersive storytellers, to develop the possibilities of the medium in this emerging scenario, (CEPYMEnews, 2022).
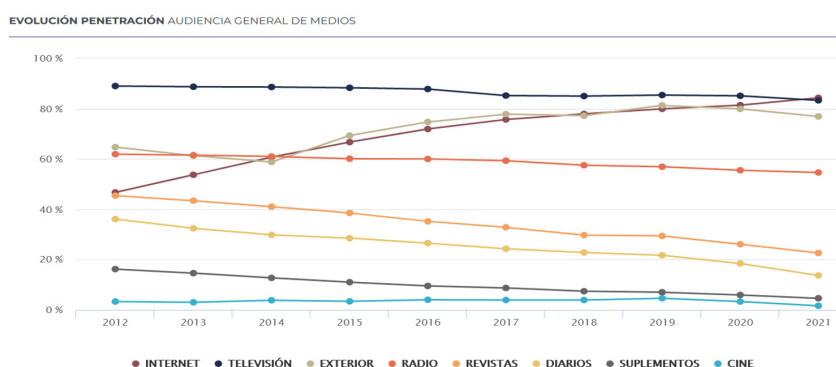
4.8. Migratory flow of the audience in the digital media framework

Digital convergence and the diversification of platforms and screens through which radio content circulates offer a media landscape where very few programs are broadcasted on a single medium (Feijoo-Fernández and García-González, 2018). For this reason, scientific literature and audiometry companies have referred to the changes in radio consumption models and the shift of the airwaves radio audience towards listening through the Internet and other platforms. Moreno-Moreno et al. (2017) have already warned that the uses and preferences of *online* audiences configure a new audience niche that needs to be analyzed with new audiometry methods, more suitable for the *cross-media* environment in which radio currently operates. The challenge for radio audience research in this convergent and multiplatform media context lies in establishing new measurement systems that integrate the different types of *online* and *offline* consumption. Now it is confirmed that the multiplatform scenario generates a multiple content offer and greater penetration among potential audiences. For this reason, as commented by Moreno-Moreno et al. (2017), Spanish radio companies are attentive to the information provided by studies such as the *AIMC Survey of Internet Users* (AIMC), *Interactive Advertising Bureau's* reports in Spain (IAB Spain) or *Reuters Institute's Digital News Report Spain* (DNR), to know the uses and digital preferences of users. However, the changes produced in listening habits with the arrival of media convergence require rethinking the way of measuring radio consumption, both the programming of conventional stations and other audio content, typical of *online* platforms.

For Quintás-Froufe and González-Neira (2021), the measurement of the *online* audience has difficulties in finding the most appropriate methodology for each medium and there are still many unanswered questions. These two researchers consider that we are still far from having a consensual and consolidated system for measuring the *online* audience because, given the vertiginous technological evolution and the transformation of listening modes and user interests, the measurement methods must adapt to the emerging digital media scenario, against systems that are already well established, such as the audiometer on television or the General Media Study (EGM) on the radio.

The data, agreed by the Spanish radio market, is currently supplied by the *Asociación para la Investigación de Medios de Comunicación* (AIMC), which prepares a report on Internet radio consumption, based on the personal statement of each individual in the sample designed to carry out the General Media Study (EGM). From these data, it can be deduced that the audience is moving towards the Internet to listen to the radio, compared to conventional wave devices (FM and AM), as shown in the following chart (1).

Chart 1: *General radio audience in the media landscape in Spain in 2021*

Source: AIMC/EGM, 2021. https://reporting.aimc.es/index.html#/main/cockpit

According to the General Media Study, the daily radio audience in the last wave of 2021 stands at 54.6% of the population. In 2016, five years earlier, it was 60%, data that reflects a sustained downward trend. However, listening to the radio over the Internet has gone the other way. In 2016 the daily audience was 3.9% of the population and in 2021, 7.8%, exactly double (AIMC/EGM, 2021).

One of the main challenges regarding digital measurement is monitoring based on the individual and not on the device, and the introduction of massive analysis techniques and artificial intelligence, to globally increase the accuracy of the data. It is about overcoming the quantification data of the download or the IP address associated with *streaming* to quantify people who listen. There is still no precise measurement tool to quantify the listening behind the download of a podcast, beyond the individual declaration of each user. For this reason, the AIMC is working with the Internet traffic data files provided by the networks, to quantify the *streaming's* audience and be able to add it to the Hertzian channel's audience. This association also works on the quantification of listeners in *podcast* listening.

4.9. Pandemic time: production processes and digital tools that are here to stay

Scientific literature has documented the preference of Spanish citizens for television over other media in the first months of the Covid-19 pandemic (Montaña-Blasco et al., 2020). But the health crisis has marked a turning point in radio.

The most critical moments of the pandemic forced broadcasters to speed up and make better use of digital technology for the production and broadcast of their programs. The ways of working also changed and the prominence of some professional profiles that until then, despite their importance, had been in the background, for example, technical and IT staff, was recovered. Equipment and broadcasts were minimized in workplaces, and content production was done, in many cases, from makeshift studios in the homes of radio professionals. The writing teams began to work in *online* meetings through platforms that until then had a restricted use in their professional routines, such as *Zoom, Google Meet,* or *WhatsApp*. The audience also gained prominence as content providers and gave testimony by phone or through social media of what was happening during the population's confinement (Rodero, 2020).

But it was the experimentation with digital production and broadcast tools that made it possible for the radio to continue to be a referential information point for the population, along with television (AIMC/ EGM/Cuaderno de bitácora, 2020). Editing programs based on free access *software*, such as *Audacity*, were in many cases the lifeline for journalists who needed to write chronicles and edit radio reports.

According to Martínez-Martín and López-Pulido (2020), radio used social media to broadcast content simultaneously with conventional Hertzian programming. *Skype* became a fundamental network for conducting interviews with guests, and virtual meetings with sports, culture or entertainment protagonists were an alternative option to conventional radio interviews and round tables.

In the absence of mobile units, the stations incorporated *smartphones* and other devices capable of transmitting, such as *Quantum*, which allow broadcasting with good sound quality through an IP. Its *Quantum Lite* version has already become widespread as a tool for live connections for radio reporters. The use of social networks as a support for broadcasting and interaction with the audience was also a relatively new experience for large networks. In this sense, Martínez-Martín and López-Pulido (2020) refer to the broadcasts through *Instagram Live* or similar radio programs mediums, like Efecto Doppler, from Radio 3 on Radio Nacional de España. Months before, the large generalist channels had already used *Instragam* as a medium to report on the inauguration of the President of the Governement, in January 2020, just before the pandemic (De-Sola-Pueyo et al., 2021).

The accelerated experience of taking advantage of digital technology that stations carried out during the pandemic generated professional routines and new production models, and they are here to stay because all these novelties are already part of the daily life of the radio, both in Spain and in most countries.

5. Discussion and conclusions

The arrival of the Internet and other ICTs substantially transformed the organizational structure of the radio, work dynamics, professional profiles, formats, languages, content offer, and forms of consumption. Additionally, fiction genres that had practically disappeared from the conventional radio programming grids have been recovered, such as the radiogram and the docudrama.

In the scenario of changes that characterize digital radio, the *podcast* is born, as an alternative to conventional programming and aims to conquer a part of the younger audience. It also requires few costs and provides a transmedia dimension.

The new ways of producing, transmitting, and listening to radio offered by the Internet enrich the scenario because they force *streaming* and *podcasting* to coexist with traditional radio. In this converging scenario, wave radio still coexists with digital platforms, although some reports such as the one prepared by the *Department for Digital, Culture, Media & Sport* in 2021 for the British Government already set an expiration date for traditional radio, specifically as of 2030.

The changes have even affected the identity of radio because the new configuration of the medium, especially the migration of content to the *online* environment, allows us to speak of a multimedia dimension and also of PostRadio. For this reason, in the current digital universe, radio loses part of its essence by incorporating features of other media (*streaming* and *podcasting*) and, for this reason, it has been forced to redefine its role as a content provider for a multi-media and multiscreen society, and in multimedia and transmedia scenario, necessary to respond to the demands of an increasingly fragmented and segmented audience.

Mobile devices made it possible to approach new sectors of the audience to respond to new consumption habits, thanks, above all, to *streaming* and *podcasting*.

One of the greatest achievements of *streaming* is that it freed the listener from the time dependency established by the programming grids when listening to live programs since it allows asynchronous listening, just like the *podcast*. Thus, the listeners can manage their radio time without depending on predetermined schedules by the stations. For this reason, *streaming* and *podcasting* are responsible for the loss of one of the most genuine hallmarks of radio: live listening and the instantaneous disappearance of the message. With these new parameters (on-demand radio and the possibility of listening to content as many times as someone wants, at the time and place they want) the need arises to redefine what radio is and what it is not, something about which there is still no solid consensus in the academic, scientific, and professional world.

New digital devices, such as the *Smart Speaker*, allow listening to *streaming* audio and open up a universe of interactive possibilities that were not available to traditional radio. The forms of content consumption are increasingly diverse, although Spaniards' favorite listening device for *streaming* services is the mobile phone, except for sports broadcasts, especially football. Here, radio is still the preferred device because listeners like to participate in the narration of the event while it is happening.

Social media has also become a great ally of the radio for the distribution of its content because they offer great distribution possibilities that allow broadcasts to be increased.

One of the radio's biggest challenges is designing and producing suitable and competitive hybrid content for a scenario where conventional radio coexists with digital. The offer, moreover, is conditioned by the existence of numerous multi-support, multi-platform, multimedia, and transmedia distribution channels. Both models have their own audience, but the audience of conventional radio is trending downwards, while Internet radio is experiencing a progressive trend.

Radio, like the other media on the digital scene, is a constantly evolving medium, and to compete in the *online* environments, where changes are permanent, it needs to adapt to the demands of networks and the Internet of things, where algorithms have an increasingly prominent role. And the new proposals, to be competitive, have to be based on programming models that interact with citizens and that respond to the informational, cultural, and entertainment needs of listeners who live in a society where immersive experiences are increasingly valued. In the new radio, the audience will have a participatory role as a promoter of ideas for content and also through direct participation, to provide data and information that can be shared by more citizens. The contributions made during the COVID-19 pandemic (sharing information, exchanging experiences, helping, requesting resources, etc.) are an example of radio made by everyone and for everyone.

The audience is immersed in a process of constant change and has not yet found a stable reference point for information and entertainment. It is increasingly fragmented and segmented and is also more critical and demanding, and this context requires that content be adapted to the needs of users (cross-media) to attract a significant number of listeners.

The changes produced in listening habits with the arrival of media convergence require rethinking the way of measuring radio consumption, both in conventional stations and other audio content, typical of *online* platforms.

To give an adequate response to citizens, it is necessary to know their needs, but the current audience measurement systems are not yet adapted to the new digital scenario, where there are contents and forms of consumption that do not fit the parameters designed to measure the conventional radio audience. And this is another of radio's greatest challenges, designing audience measurement systems with techniques and methods that monitor listeners promptly and offer data that make it possible to obtain both quantitative and qualitative values of the audience, although this initiative, which requires significant investments, does not depend directly on the stations.

The technological changes affected the structures of the stations, the formats, and the forms of access and consumption of content, but also the professional profiles since the new media reality requires labor figures that did not exist until now to face obligations that are also new. Since the beginning of the 21st century, the traditional labor categories (editor, sound technician, and documentary maker) have begun to coexist (and in some cases to be displaced) with other emerging profiles linked to the multimedia and convergent dimension of the medium, such as webmasters, *social media editors*, or the experts in marketing and digital rights management.

Radio faces a triple challenge: a formal evolution, renewing content proposals, and adapting structures to the convergent scenario.

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