Rai Ufficio Studi

HEC MONTRĒAL

EBU
OPERATING EUROVISION AND EURORADIO

AUDIO-SOUND ECOSYSTEM

**From Radio
to Public Service Audio.**
The renaissance of listening,
digital products,
voice commands
and opportunities
for innovation

Rai Libri

Audio-Sound Ecosystem

From Radio to Public Service Audio.
The renaissance of listening, digital products,
voice commands and opportunities
for innovation

This volume – curated by Paolo Morawski and Alessandra Zupi – is the summary of the Italian book *Ecosistema Audio-Suono, dalla Radio all'Audio di Servizio Pubblico*, which was coordinated by Rai Ufficio Studi under Claudia Mazzola's direction and published by Rai Libri in July 2022.

In order to produce the study report, Rai Ufficio Studi collaborated with a technical panel consisting of Claudio Astorri, radio consultant and professor at the Master's Degree in Music Communication at Università Cattolica of Milan; Tiziano Bonini, associate professor in Sociology of Cultural and Communication Processes at the Department of Social, Political and Cognitive Science of the University of Siena; David Fernández Quijada, co-founder and Research Director of South 180; Sylvain Lafrance, Director of Pôle Médias at HEC Montréal; Louise Hélène Paquette, Research Associate at HEC Montréal and Professor at Cursus Médias et Communications Numériques 4.0 of Collège La Cité in Ottawa; Albino Pedroia, consultant and lecturer at the Sorbonne in Paris; Marta Perrotta, associate professor at the Department of Philosophy, Communication and Entertainment of Roma Tre University; and Andrea Veronese, Head of Studies and Research, Web and Social Networks of Confindustria Radio Televisioni.

Rai Ufficio Studi

Via Umberto Novaro, 18 – 00195 Roma

Translation by AES Roma
Language Review by BMP Translations AG, Basel

Index

Foreword Rai

by Marinella Soldi, President

The health of a democratic system and that of its Public Service media always show a strong correlation. As recent studies suggest,[1] this correlation exists in countries where the public media can count on reliable and secure resources, adequate for their goals. Mechanisms should also be in place to make sure that public media are politically and economically independent and protected from any interference, including on a regulatory level. The social benefits of this type of Public Service are several. They include greater social inclusion and cohesion, as well as more opportunities for talented and creative people.

In this general context, this volume was conceived and coordinated by Rai Ufficio Studi. The experts and scholars who contributed to it – whom I would like to warmly thank – examine the new global Audio-Sound ecosystem, from Italy to North America and to other European countries. It is within this framework that the possible future role of Public Service Radio must now be redefined.

Consider how radio came into being in the United States a century ago. It was originally wild, unregulated, experimental, bursting with creativity. However, very soon the commercial radio model prevailed, optimised for mass consumption, with the only aim of making substantial profits. In America, Public Radio, despite its undoubted value, has remained a model that has not been replicated on a large scale. By comparison, European Public Service radios have always been more structured and controlled by political and economic powers. At one time they even indulged in the worst propaganda. Nonetheless, throughout the second half of the twentieth century and up to the present day, their civic nature has rewarded them. Even today they remain central to our lives and are an important reference for those citizens interested in quality information, learning more about the current news, increasing their cultural level, being intelligently entertained, and feeling part of a community. European Public Service radio stations, as well as American and Canadian ones, focus on pluralism, diversity and quality conversation on a range of crucial topics for our citizens. Commercial radios have different priorities, and legitimately so. From the outset, radio has followed two different directions with very different economic, social and cultural aims.

Something similar, albeit with some differences, can be found in today's discourse on the development of digital communication – which is unfortunately still in its infancy – at a time when online and offline media do not follow the same rules. There is an increasingly clear dichotomy between the Old World of broadcasting systems and the New World of digital giants and start-ups, platforms and aggregators. Tremendous pressures are constantly at work to ensure that the new reality of digital media remains in the hands of a few, monopolistic private companies (OTT, Big Tech, big digital players, social media), which have nothing to do with radio or even television. These dominant digital players produce and/or distribute content that is rightly characterised by purely mercantile logics. For these companies, only business and consumers matter. Moreover, they are constantly expanding, as they are already projected towards the middle of the 21st century. What is there to object to, you may ask? As it happens, the disproportion of power and vested interests is so great that the concepts of "digital public space", "digital agora" and "digital Public Service" are struggling to make their way to both decision-makers and public opinion. This is a pity. There is a lack of more widespread, comprehensive awareness of the importance that digital Public Service Media Companies already have in times of normalcy, as well as in times of emergency.

Furthermore, we are not fully aware that the more we talk about Audio, the more Radio is to be enhanced; at the same time, we cannot limit ourselves to Radio alone, as we need to consider the entire Audio sector. As highlighted in the subtitle of this book, we are going through a renewed interest in audio in all its forms. Digital audio offerings are overwhelming and multiple voice devices are available on the market.

Whereas digital innovations and transformations appeal mainly to younger audiences, they affect society as a whole. In Italy[2], 34.5 million citizens listen to the radio on an average day, for a total of around 3 hours and 28 minutes per day. This remarkable statistic shows once more the importance of radio communication. However, there has been a long-term decline in listening, which is mainly concentrated in the youngest audience groups (14-24 years), followed by young adults (25-44 years). This is a wake-up call, a reminder to attach renewed importance and dignity to Radio, which is to be brought out of the 20th century by innovating linear distribution. At the same time, it is necessary to invest in new formats and new Public Service audio offerings to maintain the country's high level of diversity, creativity and cultural autonomy through Audio. After being boosted by the pandemic, audio entertainment in Europe has now fully entered people's daily lives. Italian growth figures[3] show increased consumption of podcasts (around 14.5 million listeners) and audiobooks (around 10 million listeners).

In order to address the new requirements of inclusion, credibility, relevance and sustainability of Public Services, a new audio-sound ecosystem is needed. In the midst of its digital transformation, Rai is actively reacting as a multi-platform company to the evolution of audio content consumption. The Visual Radio channels, the launching of RaiPlay Sound, the production of original podcasts, audio series and readings, as well as the search for new talents and new creative synergies are all signs of attention to both new and old audiences.

The transition from Public Service Radio to Public Service Audio concerns, as we said above, the relationship between digital media and digital democracy – a key issue in the modern world. Innovating Public Service Radio is thus an opportunity that is at once industrial, editorial and cultural. In a way, this is one of the keys to understanding this dense, rich *Audio-Sound Ecosystem*.

Notes

1 T. Neff – V. Pickard, "Funding Democracy: Public Media and Democratic Health in 33 Countries", The International Journal of Press/Politics, 13 December 2021, https://journals.sagepub.com/doi/abs/10.1177/19401612211060255

2 TER, Q2 2021

3 Nielsen, Q1 2021

Foreword EBU

BY NOEL CURRAN, DIRECTOR GENERAL

Radio should not just be easy to find. It should be impossible to miss.

The radio industry is at its defining moment. We've seen significant disruption in the audio sector, brought about by the rapid growth and popularity of new global listening platforms, accessed via smart speakers, apps and, increasingly, connected car systems.

Added to this, the podcast sector has infiltrated the mainstream, from niche listening to a compelling audio format in its own right. Consumer behaviour is unrecognizable from just a few years ago as radio listening migrates from analogue to digital channels. So, talking about what's next for radio seems redundant when we're already in the middle of huge change. The whole idea of 'radio' has already been redefined. The key now is how we harness developing innovations in audio to ensure the medium continues to thrive.

And radio does thrive. It attracts huge audiences worldwide. In 2021, 84% of European citizens were reached by radio every single week[1]. And the fact this flexible medium is so strong has much to do with the fact it is free and easy to use as well as innovations in the audio sector, compared to video or print. Yes, great content is in demand but is now consumed on demand with the listener in control via their smart devices, powered by voice assistants, personalised and curated by algorithms. It is no coincidence that the strongest growing demographic for audio is in the 13–24-year-old age range.[2]

Radio continues to be front and centre of changing listening habits because it responds so well to new and changing technologies. In the past few days, I've streamed radio stations on my laptop, listened to radio news on my smart speaker, and downloaded topic-centred podcasts to listen to when, or if, I get a spare moment. The need for news and information – delivered by a human voice – is stronger than ever. Tellingly, radio provides that unique sense of being together – of community – even though the listening experience is often spent alone.

This in-depth publication – Audio & Sound Ecosystem – compiled by our Italian Member Rai with perspectives from the foremost industry experts, is the first of its kind in Europe. I congratulate my Rai colleagues for producing this compendium because there's an urgent need for a road map, not only showing where we are now, but where and how radio might evolve next.

To better serve our audiences and make successful investments, we need qualitative information on audience radio and audio consumption. At the EBU, we have access to a diverse connected network through which we share expertise and information. This book takes that concept of collaboration and applies it to the whole audio landscape, giving unique insights into the state of our collective industry.

Audio consumption is fragmented with strong generational differences and is quickly evolving. To understand this market, we need to have a holistic approach. This publication covers the all-important topics, including innovation, audio distribution and consumption, the current state of both Public Service radio and the commercial sector, on a broad geographical scope. It also advises radio actors on how they can adjust their strategies to take account of changes in listening habits.

The roles of radio organisations are challenged on two fronts: on their music programming by streaming platforms that offer a limitless music catalogue and on their speech programming by the podcast market, which covers many topics and can create innovative formats, to be listened to at a time that suits the audience.

Therefore, third-party platforms and social media are increasingly important players for the audio market. We need to wisely invest on these platforms to remain visible and win over audiences. But radio broadcasters should not be afraid to build and promote their own environments for audiences to experience their content. If we're going to safeguard radio as a medium for the future, we have to ensure our content is represented on all relevant platforms so that we're in control of distribution and that we get audience credit – and audience retention – for where the richest content and best user experience is.

Earlier I referred to radio as a flexible medium. This is a huge and often underrated advantage, but there is scope for further adaptation. Including repurposing the content we air, ensuring that content has a longer life span – and recognising that this might be different across various platforms. The listener is central to this of course, with bigger freedoms in how they use content, including the option to simply skip to something they like the sound of more!

It was having the audience front of mind that helped the EBU formulate our essential four principles for 'future radio':

- Radio should be easy to use, accessible via one button and highly visible on a connected screen as a stand-alone icon or app, not hidden behind another platform. For an intuitive user experience, this is non-negotiable.
- Radio should not just be easy to find – it should be impossible to miss. There is intense competition for 'share of ear', but radio shouldn't be seen as just one of many choices. It's a key part of what audiences want. Radio should be on the first 'rank' of any set of options. The audience shouldn't have to work hard to find it.
- Disruption in distribution is perhaps most visible in the car, which is now a platform in its own right. But radio in cars should be focused and personalised responsibly. Radio has traditionally been the most trusted medium, and this is important to retain in the age when we are facing disinformation and fake news being spread especially in the online environment.
- Radio is so much more than a live stream of content. It's a package that covers public and commercial, independent and local, across all formats and audio types. You name it, it should be there.

It has been said that 'audio isn't going away, it's everywhere'[3] – and while the means of distribution will change as technologies are refined, I've no doubt that the medium itself will continue to adapt and grow. The future is in good shape – and this publication will be crucial in helping us get there.

Notes

1. EBU Media Intelligence Service (MIS), "Audience Trends: Radio 2022"
2. NPR/Edison, "Spoken Word Audio Report 2022"
3. Eric Nuzum, NPR's Vice President for Programming

Foreword HEC Pole Medias Montreal

by Louise Hélène Paquette, Associate Researcher and Sylvain Lafrance, Director

Since the turn of the century, the media world has undergone countless revolutions with the development of digital technologies. Uses, business models, production and broadcasting; all the fundamentals have been turned upside down. Radio, for its part, initially seemed more "cautious" in the face of these changes. However, in recent years, we have witnessed a veritable "revenge of audio".

The HEC Montréal Medias Hub, whose mission is to offer perspective and tools to leaders, is delighted with this collaboration with Rai, which has enabled us to observe and identify innovations, trends, risks and opportunities in this fascinating world of audio. In the next chapters, we invite you to discover this new world of sound, the innovations and transformations observed on the continents of Europe and North America. Radio and new sound applications still play a major role in information, culture and music broadcasting. This is a fundamental question, both industrially and economically for the players in the industry, and culturally for the reflection of regional, national, or linguistic identities.

We have doggedly sought to give the players in the audio world, producers, broadcasters and regulatory bodies, the tools to make informed choices for the future. This new boom in audio is opening new avenues for broadcasters and producers to expand content offerings and audience targets. This is particularly true for public broadcasters, who will find, in this new world of audio, avenues and opportunities to fulfil their specific mandates even more effectively.

Thank you to the many industry players, in both the private and public sector, for sharing their thoughts on this incredible audio adventure that continues to transform and influence the culture, tastes and choices of millions if not billions of human beings.

Welcome to the dynamic world of audio!

Introduction

by Rai Ufficio Studi

Through its various activities, Rai Ufficio Studi intends to provide food for thought and structured contributions that may prove useful, among other things, to the debate on the responsibilities and mission of the Public Broadcasting Service in the digital era – this latter's dynamic role being constantly changing and subject to a cyclical updating process. In this respect, the main objectives of this volume are:

- To define, describe and analyse the new industrial and competitive context that Radio broadcasting is part of – especially the emergence of what is now commonly referred to as "global Audio-Sound ecosystem"[1], which encompasses all areas of listening, including Radio;
- To identify the nature of the multiple challenges that the many players in the new competitive environment pose to Radio broadcasting. What effects, changes, critical issues and opportunities does the digital ecosystem – which has been undergoing major disruption and transformation all over the world for a few years now – pose to the Radio sector and to Public Service Radio in particular?
- To examine the way in which International Public and Private Radio is responding creatively to the new challenges posed by the developments in the non-Radio-Audio world by initiating or reinforcing processes of effective transformation, especially by stimulating all forms of innovation;
- To look ahead by outlining possible response strategies and to identify, based on the collected documentation, concrete insights, success stories and significant examples analysed, possible areas in which Public Radio broadcasters can enhance their innovation capacities to improve their ability to serve citizens in the new digital public sphere. The starting and finishing point of the survey is the conviction that, in transforming into digital publishers, Public Service Radios need a renewed tactical-strategic framework and an appropriate vision of the opportunities offered by digital technology, about the use of technological innovations, their social and cultural role, the enhancement of creative energy, and the objective of quality of supply.

> As part of the broader expanding universe of the Audio-Sound industry, which has strong private and commercial connotations, Public Radio must come up with a new *raison d'être* and innovative ways to be universally present and perceived by users as useful and indispensable, even in the new contexts of communication.

The international group of experts and scholars who carried out the study underlying this volume agreed on a common working framework based on five key words:

Innovation as the subject of study, but also as an innovative way of analysing and contextualising Radio broadcasting and portraying the new world of Audio-Sound that envelops and interpenetrates it. In its intentions, innovation also concerns the questions posed and the contents dealt with, the very organisation of the information and evidence gathered, the answers identified, the results produced and the final presentation format.

Radio broadcasting. The study privileges the standpoint of Radio broadcasting, which is confronted with new non-radio competitors that "encircle" it, put "pressure" on it and try to "take space" away from it at various levels and with varying intensity. At the same time, from a multidevice perspective, Radio broadcasting is observed trying to multiply the "venues" and opportunities to have the public listen to its sound content offerings. Finally, the point of view of users should never be forgotten, as they indulge their desires for information, entertainment, education, culture and sociability by listening to audio content[2] in the most diverse ways and as a function of various collective, environmental, technological and personal factors.

Data. The research was grounded in solid, up-to-date, meaningful data, which was often put together and matched for the first time. Whenever possible, established medium- to long-term trends were identified.

Methodology. The methodology encompassed desk research enriched by approximately fifty semi-structured qualitative interviews with experts and key players in the field (see final acknowledgements) to support arguments, understand the current driving factors of innovation and development, offer an overview, and identify significant experiences and models of excellence and funding to draw inspiration from. The interviewees – that is, representatives of the Public Service and Private Radio stations of the countries in question, members of industry associations, scholars and academics, and renowned experts – were chosen by the researchers in agreement with Rai Ufficio Studi and according to their level of expertise in relation to the topics covered.

Sharing. A Technical Working Table coordinated by Rai Ufficio Studi was set up with the unanimous participation of all the authors of the study. The individual researchers worked in parallel, meeting periodically to coordinate with each other and allow for mutual reporting on the progress of their respective investigations, each considering the others' progress in the subsequent drafting of the different contributions.

The research path, which was designed as a process, covered in detail:

- The new ways audio products are consumed. Due to the evolution of distribution and consumption modes, the channels, audiences, places and opportunities for listening have multiplied (at home, outside the home, in the car, on the move, in bars or in supermarkets/shopping centres/shops, at work, alone, in company, etc.)
- The very idea of radio and audio audience. With citizens' changing expectations (as to information, entertainment, education) and needs (whether social, cultural, or psychological), the increasing digitisation of the act of communication challenges the plurality of audio content consumers – including radio audiences – in a new way.

This volume intends to offer a reasoned synthesis, in English, of the main findings published in July 2022 in the Italian edition of *Ecosistema Audio-Suono, dalla Radio all'Audio di Servizio Pubblico*. To foster a wider international dissemination, Rai Ufficio Studi, together with Pôle Médias HEC Montréal and EBU, has decided to produce this leaner and easier-to-read digital version. The most innovative ideas emerged from the research and some international case histories recorded during the interviews were selected from the large amount of material collected, leaving aside market data. In particular, the summary of the first chapter and the conclusions was elaborated by Allegra Bell, based on the authors' original texts. The remaining chapters were revised and summarised by the respective authors, in November 2022.

The first chapter defines the new perimeter of the Audio-Sound ecosystem within three geographic reference markets, i.e., Italy, Europe and North America, and takes a snapshot of the new competitive scenario of the Radio Broadcasting sector in order to imagine possible future developments. Italy is analysed as the reference market for Rai. Europe is discussed as a market close to Italy and a natural extension thereof, but also in terms of international collaboration between the main Public Service Media (PSM). Finally, the perspective of North America is relevant because it is based on the assumption – almost universally shared – that it is still the most advanced audiovisual and radio industry hub. In particular, the Canadian market is interesting from a twofold perspective, as it is the most exposed to the shock force of the US audiovisual and digital industries and it is the most "European" of the American markets. Moreover, also by virtue of its Anglo-French bilingualism, Canada is historically a hinge nation between the Old and New World.

The second chapter offers an in-depth reflection on the permanence of and changes experienced by European Public Service Radios in the last decade. It highlights their original internal dynamics, which have been marked by a spirit of service and a mission underpinned by public interest. Various external stresses are also investigated, from the impact of the digital revolution to social, cultural and geopolitical changes, from the pandemic to the transformed scope of the competition.

The third chapter analyses the strategies of European and North American radio stations faced with the challenges and opportunities of the expanding digital universe, showing the breadth and originality of current innovations, and presenting a few success stories. The major drivers of ongoing innovation and future scenarios are then identified. Some of these are already taking place in the North American context and may soon feature in Europe as well.

The study ends with some general reflections on the transition from Radio to Digital Audio as a new challenge for Public Service Media and with a timeline showing the technologies that have influenced the Audio-Sound ecosystem up to the present day.

Notes

1 For a detailed definition of Audio-Sound, see the final glossary

In brief.
Main Findings

by Tiziano Bonini, Albino Pedroia and Marta Perrotta

Radio was born in the 1920s, occupying a then relatively poor sound space dominated by speech and the noises of everyday life. Throughout the 20th century, it gradually became increasingly important, even as new technologies fostered the emergence of new audio sources such as sound cinema, records, magnetic recording and cassettes, CDs and digital audio. However, with the Internet, and especially since broadband became generalised in 2005, competition in the field has become fiercer. Audio products are advancing and becoming increasingly sophisticated. Therefore, radio must evolve to continue to play its role.

The analysis of the European and North American markets has identified several propensities that embody the ongoing evolution. Many of these, the outcomes of which are hypothetical, are likely to mark and influence Radio over the next ten years. The vast amount of information gathered in the Italian publication and summarised in this volume makes it possible to identify some dominant trends.

Trends

The Audio-Sound ecosystem as a fully-fledged "new world". The study has amply documented the reality of the system and its economic and productive weight. By now, all (increasingly digital) audio content industries are interconnected and influence each other, which includes the sphere of voice commands and technological solutions aimed at improving the quality of sound and the acoustic environment.

Radio in the new ecosystem. The Internet has accelerated the evolution of the everyday Audio-Sound ecosystem. However, Radio remains the most listened to daily sound source in both Europe and North America (more than 50% of daily listening time), although this figure is strongly influenced by the age variable and tends to decrease due to increasing competition from other sound sources. Radio will remain an important sound source if its content continues to be indispensable.

Vertical integration. Radio integrates new forms of sound into its sphere of activity. Radios are currently among the leading podcast publishers, especially in Europe.[1] The most interesting examples are podcasts for younger audiences, children and Generation Z. This enables radio stations to reach an audience that does not listen to live programming but may become loyal listeners later on.[2]

Reliability of information. During the Covid-19 pandemic, radio listening remained important despite the sharp decline in mobile listening. There are two main reasons for this, namely the search for reliable information on the pandemic (information via radio is particularly effective because people listen to the medium more attentively) and the ability of Radio to entertain listeners, who are subjected to a storm of bad news.

Personalisation. Digital information allows for an all-encompassing personalisation of information (I can get what I want, when and where I want). Radio already uses digital technologies (especially smart speakers) to personalise the information (and content in general) provided to listeners.[3]

New competitors. GAFA (Google, Apple, Facebook, Amazon) are emerging as the new mediators between radio stations and the public; as such, they structure the offering because they have "control of the information on the demand" of the public. In-depth knowledge of how they work is indispensable. All the experts interviewed confirm that they pay particular attention to hiring trained employees who are aware of the new challenges and have strong digital skills, on top of having the appropriate mindset (prerequisite), publishing skills, knowledge of audience tastes and new modes of enjoyment, but also mastery of big data[4] and influencer techniques. New professionals need to know how to deliver for Radio, Television and Internet and integrate the grammar of devices and platforms into their processes (shorter, condensed and dense content, with a sustained pace that creates a positive impression).

Radiovision. Undoubtedly, some countries, such as Italy and Belgium, have been able to develop an original radio-television publishing product in a context with a more advanced degree of maturity. In some countries, such as France, Radio on Television or Television on Radio is done with unconvincing results in terms of viewer count. In North America, Video on the Radio is not a central concern. Swedish Public Radio has totally excluded video from its strategies. At the organisational level, the merger of the Radio and Television directorates, while creating vertical responsibilities (information, culture, etc.), remains problematic. After a series of top-down initiatives some ten years ago, there is now a move towards pragmatic behaviours that allow Radio, Television and Internet to integrate or hybridise with each other while maintaining the characteristics of each media (in the words of one of the experts we met: "three editorial offices working closely together are smarter than one").

Being present on all platforms: opportunities and risks. Radio stations are increasingly present on all platforms, as facilitated by radiovision. In France, Skyrock reports hundreds of millions of views on YouTube, thus increasing the FM station's notoriety and also mitigating the phenomenon of talent migration from traditional media to platforms, which is already taking place in North America. Social media create a more intimate and immediate connection with listeners, as American players point out. However, radio stations lose control of their broadcasting by becoming dependent on obscure algorithms. A possible solution lies in enhancing the Radio stations' servers to progressively establish direct contact with listeners – as Radio France will do in the coming years. The case of RDS in Italy is very interesting, as it uses social networks as a showcase but then manages all Radio-listener interactions through a proprietary platform that enables it to archive and reuse all exchanges, including "Song Tests", to evaluate the songs on air. Radio-Canada has created Ohdio, a proprietary platform full of podcasts, music and radio programmes. This will provide radio stations with the valuable data they need to improve their programming and marketing policy.

Radio is a platform, as defined by RadioCompass.[5] Italy stands out in terms of innovation thanks to radiovision – it is a pioneer in Europe – and very sophisticated initiatives such as United Music (RadioMediaset). Another peculiarity of Italy is the fact that Radio is the local medium par excellence. Its penetration remains incomparable to television and other media. Radio marketing specialists point out that Radio not only helps with sales but also generates an audience on social media.

New sound realities. In North America, broadcasters are following the technological innovations in sound reproduction from Apple and Sony with great interest. The possibility of spatialised and immersive sound reproduction will allow for innovations in sound, both in drama and other programme genres.[6] In the past, sound was the sole communication medium of Radio, while now it is the main medium and will remain so in the future. Sound not only conveys information but also emotions, feelings and moods. Technology is constantly improving the means whereby sound is produced and above all reproduced, even on the move. Today, radio publishers must integrate the listeners' need for ever higher sound quality into their production process.

New audience survey methodologies. Except in North America, where automatic audience measurement has existed for more than ten years, all the executives interviewed demand a more effective and detailed method than traditional CATI.[7] The demand for new measurement methodologies is connected to the new role of data in today's media ecosystem. Broadcasters produce more and more data (using proprietary apps and social media channels), which constitutes a new economic capital, enabling them to deepen their knowledge of their audience. In a world where consumer data is increasingly refined, the radio market, and especially the investor market, finds the data provided by the CATI method increasingly anachronistic. In Chapter 2, for example, proposals emerge for measuring the value of Public Service companies that are based not so much, or not only, on mere audience numbers, but on assessing the social impact and welfare produced by Public Service Media. The value of the audience is changing and the ways to measure it, both quantitative and qualitative (such as, precisely, the measurement of impact) are changing.

New formats, old languages. Podcasts and audiobooks are sound formats particularly suited to the emerging modes of on-demand consumption. Public Radio integrates all the skills to produce them (partly because it can take up the models of documentary and radio reportage, as well as scenic or dramatised reading and docu-fiction, and rework them). What is new is the public's attention to these formats. The data analysed shows that the consumption of podcasts and audiobooks is growing strongly and steadily. In particular, the increase in audiobooks is one of the "surprises" of this survey[8]: the data tells us that the consumption of audiobooks is growing throughout Europe as well as in North America, in some cases even more than podcasts (although the starting numbers were low, there are very promising trends). The audience that appreciates them most is young, educated, urban and with greater purchasing power than the average radio audience. As revealed to us by our interviewees in Europe, all European and Canadian Public Radio stations are investing in proprietary platforms for on-demand listening, as well as in the creation of production cores dedicated only to original podcasts, with hybrid skills within them.[9]

The rise of music streaming. Streaming platforms are among the most powerful competitors to public and private Radio. In all the European markets studied here, Radio listening in the 16-34 age group is declining at different paces, and that of music streaming platforms is growing. The trend is clear and will continue in the coming years. Our interviewees say it is difficult to compete with these platforms, and even where commercial agreements are found, there remains much scepticism. The high road seems to be the one mapped out by the BBC with its significant investment in its proprietary app. Even CBC/Radio-Canada has already applied this model.

New places and devices for listening. The car remains a valuable space for listening to radio, but this environment is increasingly undermined by other sound media, which are accessible through the dashboards of connected cars. In the short to medium term, all cars will be connected. Google, Apple, Amazon and Spotify are the main players vying for a spot in the car, and DAB+ is Radio's main weapon in responding to the challenge of other mobile listening competitors. Beyond the confined space of the car, the domestic space is also undergoing major technological transformations that will have an impact on the media consumption activities taking place within it. Smart speakers will take the place of traditional reception devices. Although they still constitute a niche, the trend is evident throughout Europe: they are the home receivers of the future. However, unlike the old terminals, they make it easy to reach a wider spectrum of sound sources. Recent research by the European Broadcasting Union (EBU) indicates that more than 60 per cent of daily smart speaker listening is to radio.[10] To tap into this trend, the European broadcasters we interviewed are moving ahead with specific productions, which are often interactive and adapted to this listening device.

New production groups. A constant that emerged from all the interviews on innovation processes is the reorganisation of the creative/production cores. Here, each Broadcaster has adopted different solutions, and there is no one model that applies to all. Nevertheless, all the Broadcasters interviewed have recently tried to reorganise their production teams, trying to hybridise them with different competences and creating cross-network creative groups. In particular, specific divisions have been created for emerging products such as podcasts.

New recruitment practices. Many interviewees indicated that their companies have adopted innovative recruitment practices. On the one hand, they are recruiting younger talents who are not after a permanent position but a (well-paid) job that they can exploit to pursue their professional careers elsewhere. In order to intercept these talents and sound out their motivations to work in the radio industry, companies such as the BBC have adopted new interview systems (sending out CVs via video presentations). On the other hand, they are looking for people with both publishing and production credentials and new skills (data scientists, data analysts, editors capable of working with multiple media). Chapter 2 shows how PSM pay special attention to digital qualifications (such as knowledge of social network content, or data analysis) and new publishing skills (e.g., the new communication methods of influencers) when hiring new staff (especially "young in spirit" and talented people). They look for professionals whose work mentality is different, more cooperative and open to change, and less hierarchical in nature. Another very important trend that has emerged as a response to the transformations occurring in society is the search for personnel with high rates of diversity in terms of culture, gender, age, social background and ethnicity. Interviews reveal a new sensitivity to diversity among both radio personnel and content producers. Broadcasters are aware that, to speak to society as a whole, they must have in-house writers, producers and talent that reflect the diversity that exists "out there". Many companies have also adopted specific policies on social and cultural diversity and recruitment.[11]

Rethinking the Public Service Brand. Everywhere, interviewees tell us that their companies have invested heavily in transforming their image and brand. Most focus on the enhancement of the unique brand (BBC Sounds, Sveriges Radio, Radio France, Radio-Canada) and invest a lot in publicising their new brand image. Innovating teams, publishing products and technologies are of no use if they are not advertised to the outside world. Big "bold reforms" usually work in re-branding. The need to keep intact one's DNA, that is, the overriding mission of each radio station, emerges from the United States and Canada. From these two countries also comes the push to diversify. The brand must retain the values for which it is known, but it can expand into more production sectors. A radio brand today no longer only produces content for FM and digital broadcasting. All the data and interviews point to the need for broadcasters to perceive themselves as a publishing brand acting in the wider Audio-Sound ecosystem.

Notes

1 For a detailed definition of podcasts, see the final glossary.

2 Radio Télévision Suisse (RTS) publishes a daily podcast on current affairs which is produced by and aimed at Generation Z. With the help of a private publisher, Radio France markets a device for listening to podcasts for children. The collaboration between Radio and publishers for the publishing and dissemination of audiobooks, mainly in Northern Europe, is also interesting. Again, on the topic of vertical integration, the leading player in the United States, iHeart Radio, markets production software developed by the broadcaster

3 Radio France proves that content can be customised without excessive costs. Its channel Radio All News France Info broadcasts news headlines four times every hour. Users can listen to the headlines whenever they want by asking their smart speaker for "news headlines". The word "news" is entered into France Info's smart speaker skill and launches the headlines, which are updated every 15 minutes by the station's journalists.

4 Swedish Public Service Radio uses the data collected for better news programming.

5 On the transition of the medium to a platform understood as "a listening supermarket where each listener can create their own schedule and technology facilitates the multiplication of consumption occasions" (Roberto Binaghi, Chairman & CEO of Mindshare Italia), see R. Borghi, "La Radio è una piattaforma efficace su tutto il funnel. Può crescere molto con streaming, podcasts, video, social and smart speaker", in Prima Online, 28 May 2021, https://www.primaonline.it/2021/05/28/325637/la-radio-e-una-piattaforma-efficace-su-tutto-il-funnel-puo-crescere-ancora-molto-con-streaming-podcast-video-social-e-smart-speaker/

6 The French ArteRadio has started recording audio-fiction using four microphones. The American iHeart Radio has recording studios for the production of 3D sound programmes.

7 In Northern Europe, IPSOS is testing multi-platform measurement, i.e., the only method that allows for a global view of the audience and the migration between classic media and platforms. In France, the radio audience measurement carried out so far by Médiamétrie is now EAR (Etude Audience Radio). The new system is based on a new, optimised and more competitive telephone survey, as well as on a single base of respondents' representative of the population for national and local measurements, and is intended to keep pace with the changing lifestyles of the population, with more than 70% of calls being made on mobile phones.

See Médiamétrie, "La mesure d'audience de la Radio évolue et devient EAR (Etude Audience Radio)", 16 November 2021, https://www.mediametrie.fr/fr/ear-etude-audience-radio. Moreover, Médiamétrie partly mutualises the automatic Radio audience measurement system, which is currently being tested for national Radio stations, with the mobile Television audience measurement system.

8 Grand View Research, "Audiobooks Market Size, Share, Industry Report, 2020-2021", 12 August 2021, www.grandviewresearch.com/industry-analysis/podcast-market and Spotify Newsroom, "Spotify to Acquire Leading Audiobook Platform Findaway", 11 November 2021, https://newsroom.spotify.com/2021-11-11/spotify-to-acquire-leading-audiobook-platform-findaway/

9 In the US, GAFA gain new skills through continuous acquisitions.

10 EBU, "Digital Media Consumption Trends", July 2021, page 23.

11 A recurring theme among interviewees is that Public Service Media teams and newsrooms are too homogeneous. While this was not a problem until a few years ago, it is now, hence the balancing initiatives. Another important question is whether a Public Service should speak to everyone and/or to many small niches. There is no "universal" service that appeals to everyone or to the majority, except for a few events (European Football Championship, Olympics, the Sanremo festival, etc.). The approach is therefore to diversify offerings, speaking to "everyone" as a whole, i.e., through the sum and complementarity of "differentiated" content aimed at different targets. An example is the BBC Asian Network Radio station, where the speakers are British people of Asian origin (and not young white Londoners), so that the children of immigrants can more easily identify with programmes that speak "to them" and their problems. By the same token, in order for Public Radio to be able to speak also to the "suburbs", BBC 6 was moved to Birmingham, so that the speakers are not all from London

Technologies and innovations that have influenced listening

by Sylvain Lafrance, Louise Hélène Paquette and Albino Pedroia

The Audio ecosystem has always been in a state of transformation. First, it was the audio discs in the 1920s that were replaced by Radio, then sound cinema became popular; later, the sound of television flooded bars and living rooms, and in the 1960s, Philips audio cassettes allowed the public to record and listen to all kinds of sound with their magnetic tape.

However, in the last twenty years or so, the widespread use of the Internet and the improvement of its transmission capacity (broadband) have accelerated this transformation. Constant technological innovations and the developing needs for exchange give rise to new narrative formats. The number of players (hence competitors for Radio) is increasing. Players that were separate from and complementary to Radio until yesterday (according to the written press) are now becoming rivals by publishing daily podcasts and sometimes live talk shows on current affairs. The result is an increasingly fragmented audience. As mass media becomes less and less "mass", monetising content becomes more difficult. Declining economic resources may have a negative impact on the quality of content, especially of an informative nature.

Figure 1 illustrates the accelerated arrival of disruptive technologies and innovations that have directly or indirectly influenced the Radio and Audio-Sound Ecosystem. It lists thirty significant events and phenomena spanning the 20th century, and some ninety in the first two decades of the 21st century. It is not an exhaustive list. A global overview (from telecommunications to information technology, from electronics to audiovisual, from hardware to software) and an international scope has been favoured, although some selected aspects relating to Italy have been highlighted.

A key to understanding Fig. 1 is the relationship between the evolution of technologies and the widening of audiovisual supply and enjoyment.

In order to reach listeners in the 20th century, AM, then FM and later DAB and DAB+ (iBoc, In-Band-on-Channel in the US) broadcasting networks were built. These terrestrial networks dedicated to a single media developed progressively, as they required large investments and took a long time to cover large areas. The satellite broadcasting of XMRadio and Sirius, though based on two different technologies, had an immediate national reach in the United States. The Internet, on the other hand, enjoyed immediate global reach and was "content-neutral" in terms of content (the Web itself disseminates text, sound, video, images).

While technology favours the acceleration of history, sources of content (speech, music) and opportunities for listening (ear time) have increased exponentially since the end of the 20th century thanks to the development of the Internet and digital technology, which will continue to expand in the coming years. Meanwhile, through the idea that technology is an enabler of rights, the notion that access to the Internet and the equitable dissemination of technology are fundamental human rights has gained ground.

The escalation of change in the 21st century resulting from the merging of two technologies – digital broadcasting (streaming) and reception (universal devices) platforms – has taken place in a booming communication market comprising numerous players, objects, services and types of content. The audio audience has grown significantly and unprecedentedly compared to the previous century, by virtue of the multiplication of audio content offerings and listening modes.

OVERVIEW OF AUDIO-SOUND TECHNOLOGIES AND INNOVATIONS

This page offers a graphical overview of the large number of innovations that have influenced listening, from the birth of Radio to the present day. The same events are detailed in the final infographic on page 220.

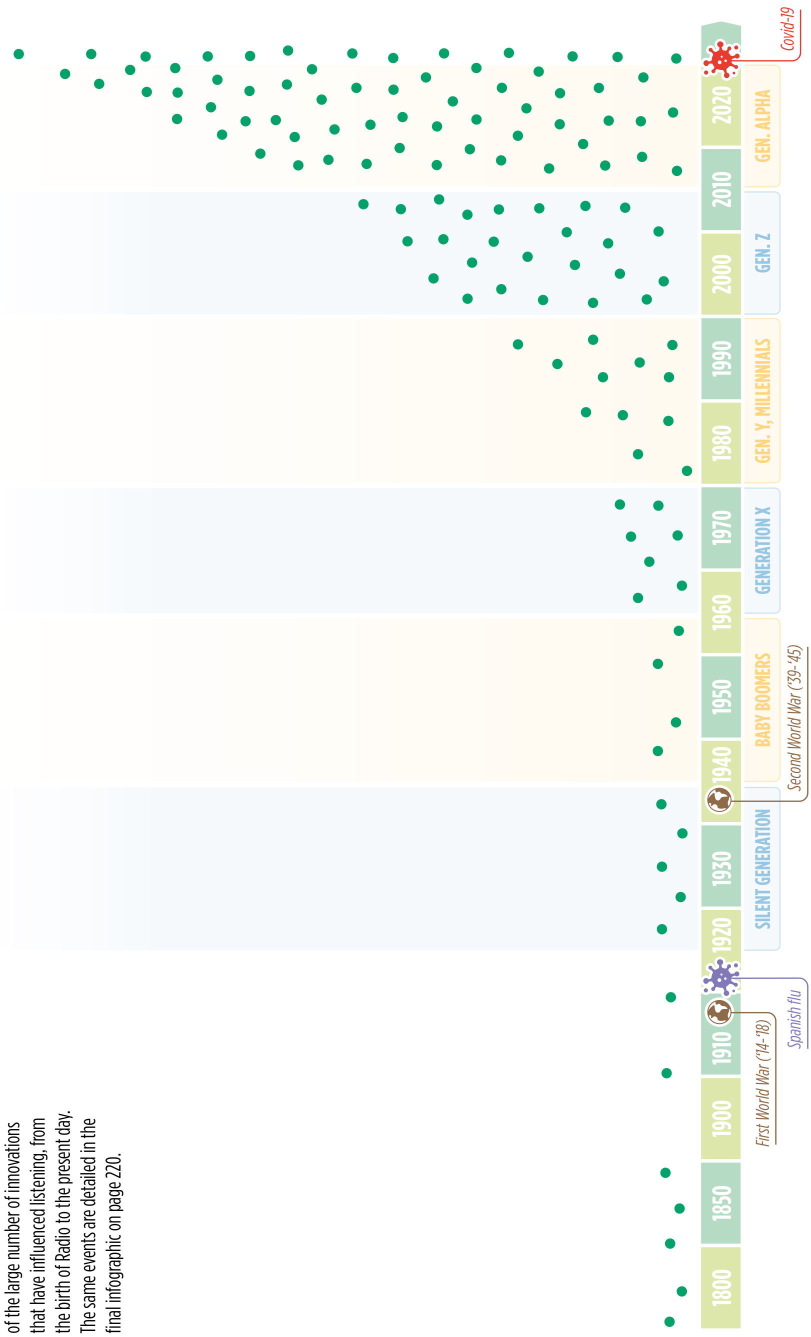


Figure 1 – Source: elaboration by Rai Ufficio Studi

Chapter 1

The new Audio-Sound ecosystem in Italy, Europe and North America

by Tiziano Bonini, Sylvain Lafrance, Albino Pedroia, Marta Perrotta, Louise Hélène Paquette and Andrea Veronese, summary by Allegra Bell

1.1. Redesigning the competitive environment: the centrality of voice

Over the past two decades, with the development of the Internet and digital networks, the perimeter of the Audio-Sound ecosystem – which over the years has been changing and influenced by the succession of technologies and innovations – has expanded considerably. The adoption of new digital broadcasting and reception technologies (streaming platforms and universal devices) has played a central role in this expansion of both audiences (increasingly fragmented) and players (previously separate and complementary to Radio, whereas now competitors). In fact, as the number of increasingly niche offerings grows, today audio technology makes it possible to reach considerable audiences in large national and international areas at relatively low production and distribution costs. In this complex Audio-Sound ecosystem the transversal nature of voice emerges with two main features: its simplicity and its consequent strength. To entertain, to explain, to educate, to reassure. To silence the noise and make room for speech and music.

Indeed, voice has acquired a new enabling role, no longer tied exclusively to the means of communication as such (i.e., telephone, Radio, Tv). In fact, thanks to the advent of voice assistants and the spread of smart devices, it is becoming, in and out of the home, a true user-machine interface. After having long used the "physical" keyboard and grown familiar in the last decade with the touch screen, we are entering the era of voice command. The first two modes will probably not disappear, but *voice technology* will carve out an increasingly important space in the coming years.

Today, in fact, with the use of voice we can do online research, get suggestions on the best route to a place (perhaps while driving), complete an e-commerce procedure, and modulate home environments (home automation). This voice and digital revolution radically alters the relationships between people, authors and technology, blurring the lines between different modes of media use (Radio is listened to, Tv is watched and paper is read).[1] But if the new Audio-Sound system, in its most technological and advanced component, is characterised by the development of new features through the use of "voice", it includes another closely related part, represented by audio content.

> It is the very spread of voice assistants that is calling for new content development. But what matters the most is that the boom in voice technology is opening the door to what has been called the aural attention economy. If before brands, in the visual attention economy, had to win and share people's visual attention by projecting their image on the screens around them, now they have a new space in which to try to emerge and where to play for consumers' attention: this time through sounds, music, voices.[2]

With the advent of the iPhone and the proliferation of smartphones, user attention has been increasingly enhanced through apps on mobile devices (Facebook, YouTube, Instagram, TikTok). The concept of the *aural attention economy* has been addressed on several occasions by Daniel Ek, CEO of Spotify, pointing out that, in recent years, much of the monetisation of digital services has been enabled primarily through video screens and displays, while Audio remains a large and still not fully exploited market. Indeed, content delivery through voice and sound can offer multiple advantages such as *portability* (you don't have to leave/stop what you are doing to listen to something), *accessibility* (marginal entry level), *imagination*[3] and speed (we talk faster than we can write). With respect to this last aspect, Nicoletta Pollat Mattiot writes:

> we speak 150 words a minute, we can write 40. The digital generation is undergoing a rapid – as always when it comes to technology – vocal mutation. The words we use and the way we pronounce them reflect our identity. Perhaps this is why, just when everything seemed to be going through a screen and through the act of writing (posts, tweets and messaging), vocal cords are starting to make themselves heard again, even on WhatsApp and apps that were initially visual and only later utilised sound.[4]

Not to mention the fact that more and more people are manifesting screen fatigue and in reaction to the excess of visual stimuli, an increasing amount of digital audio content (music, podcasts, etc.) is being consumed.[5] *Voice technology*, in fact, goes through, and demands, the development and dissemination of audio content (sounds, music, speech) and important evolutions in everyday life with new actions, introducing automatisms that are changing entire sectors.

> The fact of using voice makes interaction with devices simpler and more natural. It also saves time, introduces phenomena such as empathy and the possibility of expressing oneself as if talking to an acquaintance. Technology that enables all

> this makes people change their behaviour, begin to perform actions in a completely new way and, given the benefits, easily become accustomed and attached to the new ways.[6]

Major global digital players (Google, Amazon, Apple, Microsoft) and specialised start-ups have been grasping all this potential of voice for a long time, investing in increasingly refined technologies. The story goes that in the early 2000s Steve Jobs was already working on voice recognition. Apple itself opened the market with the launch of Siri in 2012. Microsoft launched its Cortana voice assistant in 2013, Amazon its Alexa in 2014; Google has been on the market with its Google Home system since 2016,[7] while Samsung with Bixby since 2018, not forgetting the proprietary versions of Chinese operators Alibaba and Baidu (2017). In an increasingly globalised world, then, where the potential and centrality of voice is being widely exploited by major digital companies, there is a sense of urgency to respond to the new challenges of cultural and digital sovereignty, which we will discuss in depth as a function of the Audio-Sound ecosystem.

1.2. Big global players, digital platforms, concentrated markets

As mentioned, the new centrality acquired by audio and voice has been capitalised by the big players in the global digital market (GAFAM).[8] These players, leaders in all the markets in which they operate thanks to their global scale and the significant economies of scope and scale they activate, raise the level of concentration and barriers to entry even higher. In fact, the market for "media entertainment" services – including Audio-Sound, the subject of our study – appears today to be hyper-concentrated in the hands of a few players with a high self-financing capacity that allows them to invest heavily in research and development. Globally, we are in fact facing an economic scenario that is changing dramatically toward an increasingly digital/online and concentrated system, well represented by the concept of "platforming the world economy". In this new paradigm, platforms take on the role of intermediaries, collecting increasingly detailed and valuable profiling data in terms of direct exploitation. Moreover algorithms and artificial intelligence guide our choices in an increasingly invisible and personalised way, while new virtual assistants break down the technology gap, reducing cognitive effort. In this context, it is not only the revenues generated from the sale of devices that are of interest to the big producers of audio content access technologies, but all the other ways of monetising the relationship with the customer after the initial transaction: software, cloud storage services, e-commerce, entertainment services, etc., to the extent that manufacturers' brands are always part of the digital experience. They have been able to create a connection, providing tangible added value.

In general, the digital environment today appears more exclusive and competitive than ever before. Individuals and companies are contending in a virtual arena that rewards those who can best and constantly enhance their Web presence. Now even the smallest and most local businesses, according to an almost obligatory choice, must respond to the *Always-On Connected Company* model. The Internet is growing in terms of reach and time spent, at a time when more and more activities and services previously conveyed by other media (Tv, Radio, print) are beginning to enter the digital media diet in a structural way. The use of paid online services, in an environment that has always been considered free, has now become more entrenched. More and more services previously carried by classical media have entered the digital media diet. This trend had been in place for several years, but it certainly accelerated during the pandemic emergency and related travel restrictions imposed in various countries, causing even less inclined individuals and older age groups to approach digital consumption more quickly. The gap between digital natives and previous generations is narrowing, and the use of audio content through connected devices is becoming more common. This translates into new economic opportunities for many brands and companies with the chance to experiment with different means and modes of digital communication.

Therefore, the digital marketplace is the most competitive arena. This is a digital economy concentrated in the hands of a few intermediary platforms with bundled products and services ranging from audio/video content to e-commerce, and significant returns in terms of engagement and loyalty from a large user base. In most cases, these entities are also integrated downstream with devices where the relevant services turn out to be often preinstalled and directly accessible without performing any authentication procedure (software-hardware integration). All this has resulted in a strong advantageous positioning in terms of visibility and usage. With their content offerings and digital platforms, they can directly address citizens without intermediaries. This situation gives rise to several questions: where is the money? Who produces the content? Who owns the data? How does one not miss the train?

"A thousand songs in your pocket", declared Steve Jobs' advertising slogan at the launch of the Apple iPod in 2001, a small object in which to put "your entire personal music library".[9] The innovation set the standard. In today's technology landscape, platforms create alliances with content producers to differentiate themselves from competitors with exclusive offerings, or to monetise through subscriptions the consumer's post-purchase phase. In that case, they develop their own entertainment system and invest huge resources to acquire content catalogues: Amazon Music, Apple Music, Roku, Sony Music, Google Podcasts, etc. New producers and broadcasters have entered the market. In economic terms, a *subscription model* with unlimited consumption has emerged in parallel with a *pay-per-use model.* In general, this phenomenon affected not only the music market but also the audiovisual (Tv and cinema), information (news) and gaming markets. The development of the new market took place initially through "downloading", a mode of enjoyment still conceptually based on the possession of a digital good (as was the case with physical media), and then moved, at a later stage, to "streaming". In this way, music and, gradually, spoken audio content such as podcasts increasingly took on the form of a *commodity*.

Partly because of what has been described so far, the music industry has undergone a series of major changes. As a result of the wave of acquisitions that has swept the industry over the past two decades, three record companies now dominate the music market: Warner, Universal, and Sony. Meanwhile, independent networks and some private media companies are diversifying their activities in this direction. In the music distribution market, mergers and alliances are forming to better cope with the new economy generated by streaming services and social networks. On the other hand, record companies are entering into major deals with social media (TikTok, YouTube) for broadcasting rights. After suffering heavy revenue losses, they are only recently returning to profits, mainly by collecting royalties from streaming services and social networks. The financial tools available to major record companies allow them to expand catalogues, targeting the most popular artists and formats (pop, K-pop), to keep this business model easy and profitable.

In this new scenario, integration with social networks, a practice also widely exploited by music streaming platforms since their launch, is one of the most effective ways to promote and disseminate music services, but mainly emphasises the need, especially among younger age groups (GenZ),[10] to share music, playlists and audio content. In fact, during the pandemic, the total absence of live concerts due to the restrictions imposed on public events led many artists and music labels to the use of live streaming on platforms such as Twitch,[11] YouTube, Facebook, Instagram, and TikTok, confirming the decisive role these play in strengthening the relationship with fanbases, especially younger audiences accustomed to discovering new music through social media.[12]

1.3. Diversity and plurality of the Audio-Sound ecosystem

In this scenario, a new ecosystem emerges that includes not only Radio but also Audio-Sound related products and services: from the use of "voice" to the consumption of audio content (music and speech), music streaming, podcasts, audiobooks, you get to voice command systems. In recent years, this complex and heterogeneous Audio-Sound ecosystem has become populated and enriched in terms of operators, services, and content. Primarily on-demand music streaming platforms, but also social networks and video and gaming platforms, have seen significant growth in music consumption. On-demand streaming has represented a real paradigm shift, both in terms of cultural approach (consumer side) and business model (industry side), with the shift from owning a single piece of content to accessing a catalogue of contents.

Radio, therefore, is no longer the hegemonic tool for access to mobile or stationary consumption of audio content, but is competing in this market to capture listeners' attention. Attention, however, is a finite commodity, difficult to reproduce, and therefore prized. Throughout the twentieth century the traditional media industry competed for the attention of its users, but today new actors have emerged to claim for themselves ever larger portions of this valuable commodity. Many of these actors, moreover, offer symbolic content similar to Radio, that is, sound content or audio content within multimedia devices. In fact, they turn out to be enablers of increasingly *Audio first* situations, where what is heard is more important than what is seen (from the home to the car), leading to a decisive competition against the Radio world. To the smartphone (a contemporary extension of the Self), which has become the favourite channel for mobile enjoyment of online content (video, audio, news), the computer (the working screen) – the two main technologies for listening to online audio content for all age groups – and the tablet, numerous other "smart" objects have been added (smart TVs and connected cars with their infotainment systems, voice assistants) that now help us in many everyday actions. Not to mention "smart" headphones, aimed at a more intimate and personal listening experience and equipped with head movement detection devices and voice commands, which are gradually replacing the use of smartphones for many commands.

NEW AUDIO-SOUND ECOSYSTEM

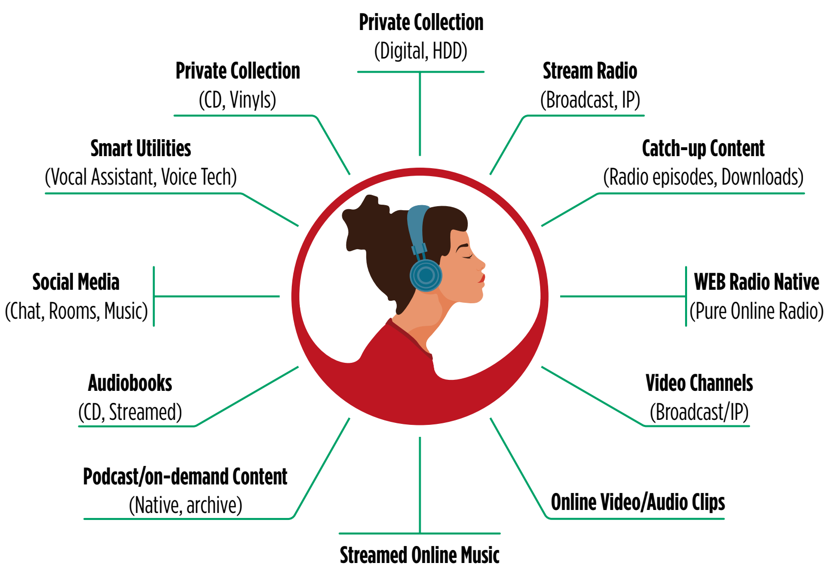


Figure 2 – Source: CRTV elaboration

Amidst the multiplicity of devices, it is important to emphasise that at the centre of the new ecosystem is the listener and the amount of time allocated to the different types of audio/video services available, in an increasingly competitive market scenario (Fig. 2):

> Every moment of the day becomes a potential consumption opportunity to be conquered (touchpoint) and valued in economic terms according to the business model imposed by the platforms (track-suggest-monetise). In this context, audio can be the ultimate weapon to reach into the most difficult interstices of media consumers.[13]

Not all segments are economically quantifiable, and many belong to traditionally distinct markets with different publishing logics and audiences that are not yet comparable with each other (think of the different markets for radio broadcasting, audiobooks, on-demand music streaming services, voice assistants and social media). All these sources focus mainly on Digital Audio, a market that has been growing rapidly in recent years. In general, when we talk about Digital Audio, we refer to the enjoyment, linear and nonlinear, of audio content through any device connected to the network. These fully include streaming music services and on-demand audio content, such as podcasts and audiobooks. Digital Audio also includes playlists, understood as an automated succession of separate content, and native Web radios.

Within our Audio-Sound perimeter, to Digital Audio we should add, however, a part of radio consumption that is still "analogue". Compared to the video market, which is now entirely digital, the audio, or more specifically radio, market is still based on the coexistence of two technologies: *analogue* for listening to Radio through FM/AM frequencies and *digital* represented by Digital Audio Broadcasting (DAB/DAB+) in Europe and by satellite radio in the United States and Canada, the natural evolution of Broadcast Radio broadcasting, and by the Internet (broadband) for all online services (including live Radio). Thus, Radio broadcasting includes Radio stations, national and local, with Web formats, simulcast streaming of live broadcasting, and on-demand replay of individual programmes (catch-up content), to which are added *Visual Radio* versions, forms of brand extension available on typical television platforms (DTT, DTH).[14]

Also included within the representation of the new Audio-Sound ecosystem are traditional (e.g. Facebook, Twitter) and new (e.g. Clubhouse, Greenroom) social media platforms, which are increasingly active in music (and audio) with online events, new voice features (Rooms, Spaces), and partnerships with streaming services; and, more generally, communication services (e.g. WhatsApp) and the use of voice assistants, at home and away from home. Video platforms such as YouTube are made to fall under on-demand streaming services in some cases, while in others they are likened to music video/Tv channels (MTV, VH1). Finally, privately listening to music on physical/digital media (personal collections of CDs and vinyls)[15] has now become residual.[16]

1.4. Mapping the Audio-Sound ecosystem in Italy, Europe and North America

Currently, there are no tools that manage to take a comprehensive and integrated picture of Audio-Sound consumption as a whole as we have described it; there is only separate research that refers to separate markets.[17] One of the objectives of this study is to trace the perimeter of the new Audio-Sound ecosystem in the markets analysed (Italy, Europe and North America), bringing together all the players that contribute to forming the ecosystem, with their specific weights. We are, in fact, facing a moment of vertical and horizontal commercial expansion, in which mergers and alliances are necessary to better face future challenges and in which actors that today turn out to be competitors will tomorrow find themselves partners, and vice versa.

NORTH AMERICAN AUDIO-SOUND ECOSYSTEM AND MAJOR PLAYERS

<table>
<tr><th>TECHNOLOGY</th><th>CONTENT</th><th>DISTRIBUTION</th><th>BROADCAST</th><th>AUDIENCE</th></tr>
<tr><td>Records, Vinyls, Cds</td><td rowspan="7">Music</td><td>Stores</td><td rowspan="2">Venues, Events</td><td>Silent Generation</td></tr>
<tr><td>Transmitters</td><td>Talent Agencies</td><td rowspan="3">Boomers</td></tr>
<tr><td>Receivers, Transistors</td><td>Record Companies</td><td rowspan="5">Broadcasting</td></tr>
<tr><td>Tv Sets</td><td>Radio Waves</td></tr>
<tr><td rowspan="2">Games Consoles</td><td>Cable</td><td rowspan="3">X Generation</td></tr>
<tr><td>Satellites</td></tr>
<tr><td>Computers</td><td>DAB</td></tr>
<tr><td>WWW</td><td rowspan="7">Voice</td><td rowspan="2">Online Stores</td><td>Satellite Radio</td><td rowspan="5">Y Generation, Millennials</td></tr>
<tr><td>Artificial Int.</td><td>HD Radio</td></tr>
<tr><td>Telephones, Tablets</td><td rowspan="8">Internet
Mobile Phones
3G, 4G, 5G
Data Storage</td><td rowspan="8">Streaming Audio</td></tr>
<tr><td>Mp3</td></tr>
<tr><td>A/V Realities</td></tr>
<tr><td>Smart Vehicles</td><td rowspan="2">Z Generation</td></tr>
<tr><td>Smart Speakers</td></tr>
<tr><td>Smart Objects</td><td rowspan="3">Advertising</td><td>Alpha Generation</td></tr>
<tr><td>Smart Tv Sets</td><td rowspan="2">New citizens coming from immigration</td></tr>
<tr><td>Smart Keys, Boxes</td></tr>
<tr><td>Utilisation - Data</td><td></td><td>Utilisation - Data</td><td>Consumption - Data</td><td></td></tr>
</table>

Legend: GROWING, DEVELOPING – SLOWING, STABILITY – DECREASING

Figure 3 – Source: elaboration by Sylvain Lafrance and Louise Hélène Paquette

In the schematisation of the North American market (fig. 3) we can see an economy in profound mutation, affecting all players in Audio and Sound: manufacturers, producers, distributors, broadcasters, and listeners. In this complex ecosystem, all these players appear to be interconnected with each other, with different power relations: many are emerging and experiencing strong growth, others are stabilising/slowing down, and still others are in sharp decline. From a consumption perspective, there is growth for all Audio content (music, voice, advertising), driven mainly by increased consumption by the Alpha generation[18] and citizens from diverse backgrounds. In terms of technological, distribution and dissemination aspects, the fastest growing are the players acting in the digital and interconnected environment,[19] at the expense of physical media and traditional distribution and dissemination technologies.

The ongoing transformations in the increasingly competitive world of Audio-Sound impose challenges for Radio broadcasting to face and opportunities to seize. Indeed, the new players populating the ecosystem continue to colonise the daily consumption habits of audio content, especially among the younger (under-35) segments. Given that the spectrum of attention is not infinite, in the next 5-10 years a decrease in the choice of Radio as the elective tool for listening to music and audio content can be expected, although not equally distributed among different age and income groups. The rates of colonisation of listening time by new players are highly variable not only with respect to sociodemographic indicators, but also from actor to actor and country to country. From the latter point of view, the European and North American markets do not offer a homogeneous and clear trend. In each national reality there are different actors and more or less established consumption habits, without prejudice to the role of the United States as a trendsetter. There is a lot of variability, testifying that technologies do not impose themselves, but their advancement and adoption depend on economic, cultural and political factors.

Summarised below are the levels of risk to Public Radio in the short, medium, and long term associated with the various alternatives that contribute to the composition of the Audio-Sound ecosystem, from North American (fig. 4) and European (fig. 5) perspectives. While the European overview focuses on the different categories of actors competing for listening, the analysis of the North American context not only focuses on these but also on the challenges facing the broadcast media, distribution, and listeners of today and tomorrow.

CHALLENGES AND OPPORTUNITIES IN THE NEW NORTH AMERICAN AUDIO-SOUND ECOSYSTEM

SEGMENTS	ACT NOW SHORT-TERM RISKS – 2023	INFORM STRATEGY MEDIUM-TERM RISKS – 2025	WATCH CLOSELY LONG-TERM RISKS – 2030
TECHNOLOGY			
Smart speakers	App, skills		
Connected cars	Be on dashboard		
CONTENT			
Audiobooks	As producer		
Podcasts	As producer		
Social audio		Events, talk shows	
DISTRIBUTION			
Talent agencies			New talents
DIFFUSION			
AM/FM Radio	Staying focused		
Audio platforms	Diversification		
DAB	AM radio stations		
Social networks	Marketing strategy		
AUDIENCE			
Younger generations	To engage		
Neo citizens	To represent		

Figure 4 – Source: Elaboration by Sylvain Lafrance and Louise Hélène Paquette

OVERVIEW OF THE RISK LEVEL REPRESENTED BY PLAYERS IN THE AUDIO-SOUND ECOSYSTEM

SEGMENTS	SHORT-TERM RISKS – 2023	MEDIUM-TERM RISKS – 2025	LONG-TERM RISKS – 2030
Podcast	Low	Medium	Medium
Audiobook	Low	Low	Medium
Musical streaming	High	Very High	Very High
Social Audio	Very Low	Low	Medium-Low
Smart speaker	Low	Medium	Medium-High
Connected Car	High	High	Very High
Other players	Low	Medium	Medium-High

Figure 5 – Source: Elaboration by Tiziano Bonini and Marta Perrotta

In order to think systematically about the Audio-Sound ecosystem, the actors that populate it, and the challenges they pose to Radio broadcasting, a joint analysis of data for Italy, Europe, and North America was carried out, despite the breadth of action, of the differential timing and pace of the various countries and geo-audiovisual areas.

Speaking in general terms, the Italian market of reference for Rai is one in which the Digital Audio sector is still not fully developed, although it is growing. The only sector that manages to generate revenues of some significance is streamed music, mainly via subscription. Podcasts, despite their potential user base, do not yet have effective monetisation models and strategies (subscriptions and advertising), while audiobooks, available in a few distribution platforms, rely exclusively on the paid subscription formula.

Italian data are systematised with those of the European continent, as a neighbouring market and its natural extension, with a view to internationalisation and collaboration among Public Services on the continent. It should be emphasised, however, that a unified European point of view does not exist: the plurality of Audio-Sound is therefore illustrated here by taking as reference a few selected countries, studying individual cases as examples. Even though the trends observed are generally the same, however, crossing the borders between the countries of Europe we can still witness more or less developed situations, rapid transformations and extensive consumption.

Overseas, the markets examined are the United States and Canada. In terms of indicative figures, the markets in the United States are very large and new technologies quickly become profitable, even in the introductory phase with early adopters. The country remains the essential reference point for the entire Audio-Radio sector as a territory that has always been able to dictate a way and anticipate trends and developments in European markets. Canada, on the other hand, acts as a singular crossroads between the European dimension and the United States. Canada, in fact, is exposed to the US by geo-linguistic and economic proximity, suffering on the one hand the pressure of its neighbour's innovations and on the other hand sharing its challenges and characteristics. It is also true, however, that Canada, on the strength of its English-French bilingualism, is the most "European" of the American markets, acting as a bridge between the two continents. The Canadian case is therefore to be analysed with an eye to the future, as it may foreshadow Europe's destinies.

The size of the Canadian market, which is small in terms of population compared to the United States and the EU, is a factor affecting its profitability. Indeed, although digital audio has the advantage of not requiring very expensive technological infrastructure, in terms of niche content offerings it is a market that saturates more quickly. In any case, new Canadians, who tend to be younger, consume more on-demand content via digital platforms. English and French are the two official languages of Canada. English speakers, who make up 75 percent of Canadians, are more exposed to American media culture because of geographic proximity and common language. In terms of content, private English-language media are mainly dependent on imported foreign programming in prime time. This dependence prompts an ongoing struggle to promote government policies that ensure the airing of more Canadian content. The same is true for music and audio content. Ninety percent of Francophones are concentrated in the Province of Quebec and benefit from their own "Hollywood" environment – a very dynamic cultural hub that feeds media content and creates loyalty and engagement with it. The survival of the French language in North America is a sensitive issue as media consumption among young Canadians globalises through unregulated platforms.

The tripartite analysis of these three markets is functional to taking the most complete and complex picture of this ever-changing universe that is the Audio-Sound ecosystem. Within it we include, along with Radio, several players who are part of different sectors of the sound or audiovisual content industry and who are present on innovative digital devices. The effort to collect and compare data from sectors that are complementary to Radio – both public and private – is in keeping with a perspective that over time has led to holding together the ways in which different national Radio and Tv Broadcasting systems have faced epochal changes, such as the advent of private players, deregulation, the technological challenge and that of audience measurement. Considering the scope of new platforms, which can redefine regional, national and international territories, the mandates of the Public Service need new specification and definition.

To address this and other needs, an examination of the different segments that make up the Audio-Sound ecosystem is proposed below. In particular, players from radio, podcasting, audiobooks, music streaming platforms, social audio, and emerging devices such as smart speakers and sound systems inside connected cars will be analysed, and we will conclude with a focus on realities that even if they seem not to belong to the field of the audio ecosystem could have a non-marginal influence on it, such as the video game sector, TikTok, and some services and technologies that exploit the power of voice, whether natural or virtual. For each segment analysed, the main trends for the Italian, European, and North American markets will be summarised and the risks and opportunities that these players present to Public Service Media (PSM) will also be analysed. Finally, based on the mapping of the ecosystem and the various players involved, the most urgent challenges and some possible winning strategies to help the Public Service compete in this new context will be highlighted.

1.4.1. Radio

In the new Audio-Sound ecosystem, Radio exerts its influence in an increasingly global, digital and competitive arena, finding itself forced to reckon with the ever-increasing weight of a multiplicity of players proposing Audio offerings that compete with and/or complement traditional broadcasters. Audience listening time is thus increasingly fragmented, colonised by a range of different offerings, formats and listening modes. Despite this, data collected in Italy, Europe, and North America confirm that people continue – and will continue – to need reliable real-time information, both national and local, and quality shared entertainment and talk shows. In fact, it is noted that Radio, on both the Old and New Continent, still remains the most listened to sound source on a daily basis (more than 50 percent of daily listening time) – although this figure is significantly influenced by the age variable and will tend to decline, given the increasing erosion of listening time by the many other sound sources.

To meet the needs of segments of the population who listen to Radio and Audio in different modes, the traditional broadcasting of radio stations now coexists with a digital offering that is being consolidated. On the broadcasting side, Radio is indeed available in analogue audio technology (AM/FM) and in digital through the Internet, the DAB/DAB+ (Digital Audio Broadcasting) platform in Europe and satellite technology in North America. The advent of digital and the plurality of competing offerings have brought about major changes in the world of Radio broadcasting also in terms of production and enjoyment. From linear Radio (Radio 1.0), listening habits continue to shift toward a less passive and more self-directed mode (Radio 2.0), being able to choose in the digital environment between live streaming, native podcasts, or radio segments available on a delayed basis. Thanks to the refinement of individual data collection, Radio 3.0 is more personalised and customisable (Fig. 6).

FROM RADIO TO AUDIO, THE ERA OF 1.0, THEN 2.0 AND NOW 3.0

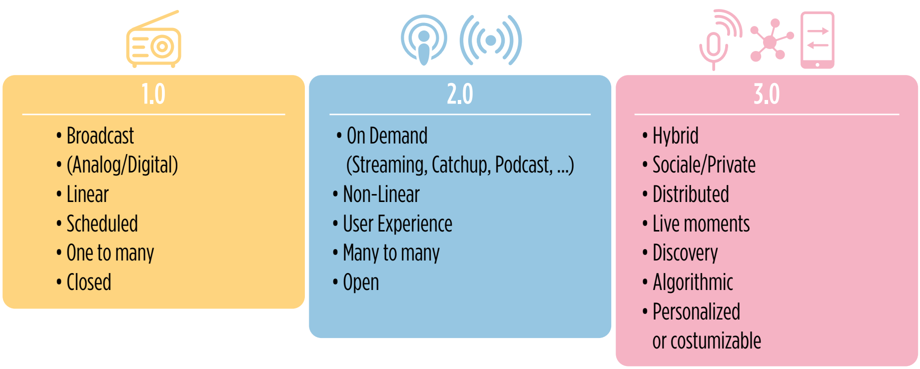


Figure 6 – Source: E. Eeman, EBU (European Broadcasting Union). Shapes & Ideas, "Clubhouse and the Great Unbundling of Radio", 9 February 2021

The choice of live programming is now flanked by various options for delayed audio, and audiences have the tools to choose and match the most-heard radio broadcasts with their own music playlist by simulating a continuous stream, with the ability to speed it up and stop it at will. Radio offerings are now multiplatform and increasingly hybrid, definitively marking the shift to the enjoyment of radio content in modes and on devices other than traditional ones. For example, news can be listened to by tapping the voice assistants of major big tech, popular talk shows can be accessed on common social media platforms, etc.

To broaden the offering to the digital environment, numerous investments have been made in recent years by all Radio broadcasting players, in terms of technology, with the upgrading of radio studios and production centres, of implementation of broadcasting infrastructure, and of editorial offerings, through the launch of new services and broadcasters. In the Web sphere, all radio publishers have developed their own brand sites and portals with a diversified offering ranging from live streaming to catch-up services (reruns of broadcast programs), from playlists and music charts to Web Radio and Tv, true "spin-offs" based on musical genres and/or specific national and international artists. Some stations also offer a selection of original native podcasts and audiobooks, full-length video concerts, and e-commerce services with branded products.

From an economic point of view, the expansion of online offerings opens a new channel of monetisation alongside live broadcasting, still a core activity. The formats of audio advertising are not far removed from those of traditional Radio broadcasting, but they need to be adapted to the digital context and its different broadcasting platforms: sponsorships (audio and/or video), advertisements, and content integrations by the narrator. Duration (shorter) and content (less flashy, more narrative and contextual) must adapt to the more intimate nature of listening through a connected device.

Online offerings are completed in mobile with numerous apps, true audio platforms, which replicate the offerings of Web portals with live streaming, on-demand content and extras. Over the years, these have differentiated themselves into "mono-brand" platforms, based on offering content related to a single radio station, and "multi-brand" by encapsulating the entire offerings of stations belonging to the same radio group in a single environment.

Finally, all broadcasters have an official profile in at least one social network where they increasingly communicate and interact with their listeners: Facebook, Twitter, Instagram, and YouTube are among the most used; Twitch, TikTok, Telegram, and LinkedIn are just a few of the others. The presence on social media through specific editorial content and extras allows the expansion of listening possibilities in on-demand mode for the most loyal as well as reaching new audiences. A virtuous example in this regard is that of the US-based NPR. In fact, since 2008, NPR Music has been hosting artists for small live concerts. They are called Tiny Desk Concerts and are made available on YouTube a few days later. This is a smart way of doing visual Radio across various windows and platforms, broadening and retaining audiences and expanding the brand.

Trends in Italy, Europe and North America

Radio, on both the Old and New Continent, still remains the most listened-to sound source on a daily basis (more than 50 percent of daily listening time) – although this figure is heavily influenced by the age variable and will tend to decline given the increasing erosion of listening time by the many other sound sources. While Radio is still strongly present among listeners' media habits, different geo-audiovisual areas present different Public Service offerings, trends and broadcasting patterns, which are worth analysing in detail.

In Italy, the radio market has been in considerable ferment in recent years both in terms of commercial (advertising) and ownership (shares), with the consolidation of some publishing groups (above all, the Mediaset Group and, to a lesser extent, the GEDI Group). At the national level, in terms of analogue FM radio brands, a total of 13 operators are present to date, corresponding to 21 broadcasters: 5 are Radios under the Public Service operator Rai, 15 are Radios of a commercial nature owned by 11 corporations, and one is a Community Radio (Radio Maria).[20] In addition to these, there is also the segment of local broadcasters, mainly composed of small and micro enterprises. Regarding the profile of listeners, in Italy just like in other territories, data reveal that more and more young people are moving to streaming services and on-demand content, enjoying audio content through connected devices.

In this dynamic context, in the two-year period 2016-2018, Rai renewed its digital radio offering (DAB+) with the launch of seven new proposals: Rai Radio Live, Rai Radio Tutta Italiana, Rai Radio 1 Sport, Rai Radio 2 Indie, Rai Radio Techeté, Rai Radio Classica, and Rai Radio Kids. In 2020, Radioplayer was launched, a system project led by the Public Service operator.[21] This is a digital aggregator that, to date, offers over 140 national and local Italian radio stations, with on-demand and live streaming content, accessible through smart devices (smartphones, tablets, smart speakers, smart Tvs, wearable devices) and connected cars (BMW, Volkswagen, Daimler-Mercedes).[22] Also within the Rai radio world, in the same year Radio Rai 2 began broadcasting in visual mode on the IP platform, live streaming on RaiPlay. Today one of Rai's flagship projects is RaiPlay Sound (formerly RaiPlay Radio), a platform dedicated exclusively to radio offerings and podcasts. Precisely the latter represent one of the pillars within the Public Service operator's new audio strategy alongside music and Radio - three macro-areas on which the British PSM counterpart BBC has built its new BBC Sound platform. In this direction, since 2020 Radio Rai has produced native podcasts such as *Labanof*, an audio series by Radio 3 dedicated to the different professions that animate the Laboratory of Anthropology and Forensic Odontology in Milan; *MatuRadio,* a series aimed at high school seniors also produced by Radio 3 in collaboration with the Ministry of Education; and *W la Scienza* by Radio Kids, to explain scientific topics to the youngest.

Broadening the perspective to the European continent, FM broadcasters will still be the most common form of listening for a long time to come, but DAB+ broadcasters promise growth in listening across Europe, at different rates. Among the large European countries, the United Kingdom and Germany are those where DAB and DAB+ receivers are most prevalent; whereas France, Spain and Italy are still in a start-up phase, with Italy somewhat more advanced. The current snapshot of the European radio industry paints a picture of a production sector that is important in terms of economic volume and relevance to the daily lives of European citizens. Yet, from the point of view of the industry's advertising revenues, a negative trend has been noticeable for many years already, accentuated also by the 2020 pandemic. The positive news, however, is that in markets where DAB is well-established, such as in the United Kingdom, advertising revenues are growing. From a reach perspective, although most people continue to be reached by Radio each week, there is a slow but gradual decline over the long term. The decline in the weekly reach of Public Service Radio, which is strongest among young people, is in line with the decline of all other types of Radio. Of course, these average figures are only but a piece of a more complex picture, which includes public channels that have grown in some countries, such as Radio France, and most other European channels losing ground in different shares. However, the European PSM landscape appears to be open to innovation: there are public broadcasters investing in native podcasts, such as Radio France, BBC, and SR. The British on-demand content platform BBC Sounds is being rewarded by listeners who prefer it to other aggregators for podcast listening, whereas some countries, such as Italy and Belgium, have been able to develop an original radio broadcast editorial product.

The structure of North American Radio broadcasting appears different from that of Europe. Overseas, stations tend to be more decentralised, based primarily on local markets, where "local" means audiovisual basins that can be comparable in size to macro-regions. All radio stations are marketed on the Web, and it is precisely the revenues generated by stations on the Web that partly offset the decline in on-air advertising revenues, recorded in both markets (although more pronounced in Canada). The United States, for its part, remains by far the largest radio market in the world. iHeartRadio is the largest radio company (by a significant margin), followed by Cumulus, Townsquare, and Audacy. In fact, the huge US catchment area allows for the development of new and emerging business models to a greater extent than in Canada, a smaller market always seeking financial optimisation. The Canadian system is in fact somewhere between the British system, where state ownership predominates, and the American system, which is less regulated and based on private enterprise. The major radio stations in the Canadian market share 65 percent of commercial revenue: Bell Media, Rogers, Stingray, Corus, and Cogeco.

The structures of North American public broadcasters are quite different: while the American NPR is decentralised, CBC/Radio-Canada is a stand-alone, independent broadcasting company. However, the two North American broadcasters share some similarities, including a lower level of public funding relative to total public spending, a key feature that forces creativity. The US national Public Radio station, NPR, which relies on a network of affiliated stations, focuses primarily on content development and distribution partnerships. NPR has invested heavily in its digital transformation, and it has been rewarded: it is now the most popular podcast publisher. NPR's propensity for innovation can also be seen in its increased revenue through diversification (crowdfunding, subscriptions, etc.). Crossing the border, Canada's public broadcaster (CBC/Radio-Canada) serves Anglophone and Francophone markets, with 52 radio stations for CBC and 14 for Radio-Canada. Like NPR, CBC and Radio-Canada have been expanding their brand into the digital space since the advent of the Internet. In 2010 – the year Netflix was created – ICITOU.Tv, Radio-Canada's French-language video-on-demand service was launched. In 2018, after developing distribution partnerships, CBC launched Gem, its English digital video streaming service. Previously, in 2009, a few months after the launch of the Apple Store, distribution of music apps began. Since 2017, citizens have been able to access CBC and Radio-Canada through smart speakers. In 2019, Radio-Canada combined all its audio content into a single mobile application, Ohdio. The same strategy has been applied on the English front with CBC Listen.

From the perspective of digital broadcasting, Europe and North America have invested in different technologies. In Europe, Digital Audio Broadcasting (DAB) is the digital standard of reference in the radio market, a natural evolution of analogue (FM or AM) reception. The digital transmission frequency is unique for each broadcaster throughout the country, and the receiver automatically switches from one transmitter to another. This improves the quality of radio listening by obviating all the problems of interference and poor reception in those territories with complex orography. The technological implementation of DAB+ also makes it possible to receive additional content (text but also images) and to potentially increase the number of new thematic channels.[23] So far, DAB deployment in Europe has followed very diverse trajectories, and there is no evidence of uniformly positive trends. However, the steady increase in the car fleet that includes DAB+ receivers will slowly but gradually lead to an increase in listening to DAB+ radio signals in the next 5-10 years. The risky but necessary strategy of investing in DAB+ will be effective, however, on the condition that an FM switch-off date is set.

While Europe is accelerating the adoption of Digital Terrestrial Radio based on the DAB/DAB+ standard, in North America this technological solution has not taken hold. Although the advantages are numerous (better sound quality, search for stations by name rather than frequency, display of associated images, ability to pause a program), it is the Digital Satellite Radio provided by SiriusXM that meets the need even of Public Radio broadcasters to reach their listeners wherever they are within the vast territory of the continent. Satellite radio signals cover wide geographical areas better than terrestrial transmitters, often with better sound quality, as long as there are no obstacles to receiving the waves. FM frequencies being scarce, Canadian broadcasters (CBC/Radio-Canada, Cogeco, Bell Media) are now investing, albeit belatedly, in transmitters to ensure the sustainability of AM stations and to equip them with better sound. The same is true in the United States, where investing in HD (Hybrid Digital) Radio is considered the best option.

Risks and benefits of digital media for radio broadcasting

Whether the technology used is digital terrestrial (DT) or satellite, to receive a digital programme an appropriate home or car receiver will be needed. Both these environments, as we shall see, are becoming the major battleground and competitive terrain within the Audio-Sound ecosystem. At home and in the car, different competitive contexts are intertwining: in terms of discoverability and priority access to content among radio publishers, Radio aggregators and streaming platforms; in terms of the focus between a more audio-centric or video-centric dashboard and home; in the car, also in terms of technology between IP, DAB, satellite and FM/AM, although "hybrid" seems to be the general orientation (without underestimating the many critical issues dictated by commercial agreements). All of this has enormous implications not only in terms of editorial control of content, but also in commercial terms, especially on who will eventually manage the advertising revenue. The Audio-Sound world is now populated by technological aggregators, in some cases proprietary, in others integrated into global platforms. Within these, Radios, whether national or local, are disintermediated at all levels: such systems often have no direct relationship with Radio broadcasters nor do they have connections with the Radio industry; they add advertising content, beyond the content of the broadcasters, without permission; they do not allow broadcasters to edit their own metadata even if it is incorrect, not to mention the lack of regional data that leads to the provision of erroneous local service lists. The urgent issue of hybridisation – i.e., the need for the radio medium to be present and accessible (discoverability) on all platforms, in all forms and usable through the widest range of devices – is crucial in an increasingly crowded competitive environment, but it also brings with it the risk of "fragmentation", in the absence of an organic and broadest possible system framework.

To stem the divergence of listening to other alternatives to Audio-Sound, one opportunity that opens up for Radio is to speed up the switch to digital terrestrial in Europe and to satellite in North America. Huge and risky investments are needed, which will not be able to repay radio publishers in the immediate term, but which represent an important curb on the presence in cars of other services. In the long run, the full adoption of DAB+ and satellite broadcasting could prove to be an important ally in defending its audience base, albeit likely fragmented between existing traditional FM channels and new ones offered exclusively in digital.

From the supply side, on the other hand, the digital environment makes it possible to distribute formats that are innovative or have been present for many years within broadcasters' schedules in a more cost-effective and widespread way worldwide, aiming to reach increasingly segmented audiences. In addition, through the collection of personal data, digital offers the opportunity to profile different audience segments in increasing detail, thus giving on-demand products an advertising appeal that should not be underestimated. At present, most PSM broadcasters use on-demand (catch-up radio) for the replay of radio programmes as an additional element to their offerings. Many publishers operate post-production adjustments by "recustomising" programming and/or incorporating additional elements into a multichannel strategy. PSM broadcasters experimenting in original native on-demand content are still few but increasing. In this sense, original podcasts could therefore represent an important element of supply diversification in the future, with the caveat that they remain focused on the editorial lines that have made the Public Service's fortune. The professional editorial staff dealing with native podcasts will increasingly need to incorporate cross-functional figures who also have a background in digital and know how to produce formats tailored to the type of platform.

These are just a few of the risk and opportunity prospects that open up for Radio broadcasting in the new Audio-Sound ecosystem: many others can only be best understood through an analysis of the various players who are increasingly competing for Audio users' listening time.

1.4.2. Podcasts

In terms of content, when people talk about recent innovations in Radio broadcasting, they think of podcasts because they have one key element in common: voice. Despite this, there are many differences. Radio is a one-to-many medium (broadcasting technology) that broadcasts its content simultaneously to everyone, favouring live broadcasting. Podcasts, on the other hand, come from the Web world and are a one-to-one medium, with on-demand, online and/or offline fruition. Most importantly, language and storytelling are different: podcasts are listened to by a single person when he or she chooses. From a purely technical point of view, podcasts are audio programmes, usually serial in nature with episodes, that you download from the Internet to your device through dedicated platforms. Specifically, IPSOS defines them as:

> Unedited audio content, available via the internet that can be both streamed and archived and listened to offline. In other words, editorial content that is natively digital and created for listening, not the transposition into audio of content created for other platforms. [24]

The most credited origin of the term podcasting dates back to a 2004 article in the British newspaper *The Guardian* by Ben Hammersley, entitled *Audible Revolution,*[25] which defined the new phenomenon of mp3 audio files available on mobile devices. Apple's interest, starting in 2005, gave a definite boost to the phenomenon, especially in the United States. The arrival of the new iPod models along with the launch of the podcast service within the iTunes Music Store effectively introduced a major innovation in the *on-the-go* listening mode.[26] This on the one hand made access to podcasts easier and more widespread, and on the other somehow "formalised" the new technology. From that point on, the podcast market did not particularly evolve until 2014, when *Serial*, a true-crime podcast that became a real case in the United States, with over 250 million listeners, was published. On a much wider and global level, interest was rekindled in 2017 with the debut of the New York Times *Daily News Podcast*, but the real revival of the phenomenon occurred only a few years later, thanks to the investments of some major players.

Podcasts represent a communication model that can create a direct channel of communication between brands and customers through voice, but they also offer the possibility to diversify offerings by leveraging exclusives and original productions, unlike music. In addition, when combined with music, they also have an "addictive value", that is, they increase the overall listening time within the platform.

Within the podcast world, formats and content can vary widely. To date, there is still no organic classification that identifies and defines the specific characteristics and breadth of genres covered.

A first distinction can be made, however, on the basis of the type of output produced: original podcasts created from scratch, or "adaptations" of existing content. In this second case we speak more precisely of catch-up content: this includes Tv series told via audio, audio tracks of content from television, or even the "customised" repetition of radio programmes.[27] But it is also true that in recent years video podcasts, i.e., podcasts accompanied by images or footage, motion graphics, or – as is more often the case – by the faces of the speakers, have been emerging on the market. The addition of video can prove to be a choice of greater appeal and grip on users, thanks in part to the potential user base of YouTube, the platform of choice, as well as immediate sharing on social media. Of these, an audio-only version is also almost always available on the various distribution platforms.

In terms of genre type, however, podcasts range from entertainment to sports, from popular series (e.g. science, history, culture) to "self-help", from pure information to journalistic investigation (such as true-crime). We speak for specific topics, which can be solo/monologue, narrative, conversational, interview, scripted, un-scripted, self-contained, serial, daily, etc. The average length of a podcast tends to be no more than half an hour, but even here there is no rule. For Francesco Bono, content director of Audible Italia, this is a

> new cultural product that has no genre boundaries or technical cages, even though the new challenge and maturity of the field are oriented towards quality. Making a podcast is not just speaking to a microphone, nor the re-listening of the Radio, nor a book read aloud as it has long been mistaken for.[28]

And within the qualitative concept, the sound "kit" – i.e., specific music and sounds that enhance the narrative, elements that can no longer be ignored when talking about a product of a professional nature – also falls perfectly within the scope of the qualitative concept.

Podcasts are produced by publishers, news outlets, literary festivals, and publishing houses, as well as by ordinary fans and influencers. In recent years, several specialised production companies have sprung up, incorporating talent and expertise specific to the digital sphere so as to be put at the service of the new format. Alongside these, several print, radio, and literary publishers have begun to produce original podcasts independently or in partnership with other players; in other cases, partnerships and collaborations have been formed.

Music streaming services have also begun to offer "speech-only" audio content such as podcasts. Indeed, major acquisitions have been made by the big players to secure content production/distribution: Spotify with *Gimlet Media*, *Paracast*, *The Ringer*, SiriusXM with *Stitcher*, Apple with *Scout FM*, Amazon with *Wondery*, New York Times with *Serial Productions* and *Audm*, Sony Music with *Something Else.*

Not all operators, however, have integrated the new audio content within their music streaming services. Apple presents a separate offering (Apple Podcasts), as does Alphabet (Google Podcasts): the former allows a choice between free access (including advertising) and/or freemium (access to extra paid content) or subscribing to individual programs/channels;[29] the latter, on the other hand, is completely free. Amazon, in contrast, offers audio content within Amazon Music, as well as in Audible, an audiobook service acquired in 2008.

In the North American market, Apple currently offers subscription audio content from numerous publishers, including Bloomberg Media, Los Angeles Times, Politico, and Vox Media, as well as channels from major newspapers, periodicals, networks, radio stations, and digital publishers, including ABC News, CNN, The New York Times, etc. Apple Podcast is integrated with Siri and can be accessed through all Apple devices on which it is preinstalled (iPhone, iPad, iPod touch, Mac, Apple Watch, Apple Tv), as well as on HomePod smart speakers and CarPlay infotainment systems.

Spotify, in contrast, has chosen the path of full integration between music and podcasts, trying to recreate the best synthesis in terms of continuous listening experience (an example is the algorithmic playlist "Your Daily Drive", where music and podcasts alternate). Since 2019, Spotify, in addition to the previously listed acquisitions, has begun to enter into commercial agreements with influencers and star system personalities (Joe Rogan, TikTok's Addison Rae, Michelle Obama, Harry and Meghan) and media companies (Warner Bros, DC Comics) with the aim of presiding over upstream sourcing of exclusive and/or original audio content (i.e., Spotify Originals), following the Netflix model that seeks to enhance the role of distributor with that of producer.

The podcast market, therefore, includes several categories of players, with a division of labour that is not always clear-cut. Many of the players perform functions that intersect and overlap; the same functions then are often performed by players covering different aspects of the supply chain (production, publishing, aggregators):

- **aggregators**: free or paid podcast distribution platforms, e.g. Apple Podcasts, Google Podcasts, Podcast Addict, podCloud, Tootak. Some are producer-publisher-aggregators, whose offerings consist not only of third-party, non-exclusive productions that are already online and accessible on other platforms, but also of exclusive products commissioned from independent producers (or co-produced with them). Platforms such as Spotify, Audible, Acast, Podimo, Podium, Sybel, Deezer, Spreaker belong to this category. In addition, exclusive for the North American market we find Stitcher (SiriusXM), Luminary, iHeartRadio, and TuneIn.
- **native publishers**: it is not uncommon for a production company to also be a publisher of its own productions and make them available to the public according to a self-distribution strategy, often non-exclusive. Examples present in the European and North American markets include Louie Media, Binge Media, Wondery, Podnose, and Majelan.
- **non-native publishers:** there are non-native publishers (newspapers, Radio or other audiovisual brands) that can play the role of producers and/or platforms for their own productions. Examples present in the European market include Rai, Radio France, BBC Sounds, Podium, SR Play, ArteRadio; overseas we find NPR, CBC/Radio-Canada, SiriusXM.

One can access content in the form of digital audio through a browser or an app installed on the device. In both cases, it is possible to analyse audiences and monitor user behaviour, either with the systems offered by each platform or by analysing session data via cookies. Google offers an analytics tool designed specifically for podcast creators (Google Podcast Manager), which allows them to study listeners' behaviour minute by minute, establish average listening time, and observe the evolution of engagement one programme after another. Platforms such as Spotify, on the other hand, offer tailored insights into the number of ad impressions (or plays), but also reach metrics and listening frequency, as well as aggregated demographic data on age, gender, device type, and audience interests.

Alongside investments and commercial agreements, the major platforms (Spotify, Apple, and Google) have also launched several tools to support podcasters in audience analysis and content monetisation, with important implications in terms of disintermediation within the value chain. Spotify offers various possibilities including *Spotify For Podcasters, Spotify Podcast Ads, Studio Ad, Spotify Open Access Platform, Spotify Audience Network*, *Spotify Podcast Paid Subscriptions*. In 2021, Anchor, the proprietary hosting platform, also struck deals with WordPress for new audio solutions and with Facebook to integrate listening directly within the social network. Apple, on the other hand, at the launch of *Apple Podcasts Subscriptions*, introduced the new *Apple Podcasts For Creators* site and updated *Apple Podcasts Connect* and *Apple Podcasts Analytics* while Alphabet, in October 2020, developed *Google Podcasts Manager*, a platform to improve the indexing of audio content (thus organic visibility - SEO) through the analysis and study of audiences.[30]

Podcasts, however, are not only an editorial format, but also a communication model capable of creating a direct channel of communication between brands and customers through voice, offering – like Radio – an intimate and individual dimension, with a strong appeal also in terms of advertising. In general, as summarised by the School of Management of the Polytechnic University of Milan, within the Digital Audio world – which includes podcasts[31] – four types of formats can be identified of which only the first two are related to classic advertising spaces:

- Recorded spots: pre-recorded advertisements with a standard duration[32]
- Quotes: communiqués read directly from the presenter (native)[33]
- Branded channels/playlists: sponsored music channels and playlists[34]
- Branded content (podcasts)

In fact, the main model for making a podcast profitable is advertising.[35] Ads are sold on a per-impression basis, that is, the advertiser pays each time its ad is heard by a user. Currently, advertisements are managed by the podcaster through direct contact with the brand, either through a specialised agency or by using programmatic advertising. In recent years, however, the subscriptional model has also become an increasingly prominent part of the market. As with music, the strategy of charging an amount for individual content – so as to have access to premium products (examples include Audible, Luminary, and Storytel) – has developed for podcasts too.

Storytelling strategies, applied to podcasts, can trigger emotional mechanisms, activate mnemonic processes and create greater engagement than traditional advertising channels. As Manuela Ronchi, CEO of Action Media, states:

> dedicated audio content is ideal for communicating and motivating in a fast, inexpensive and customisable way. Digital has alienated people, who now need human contact instead. (...) Podcasts are a middle ground, with the advantage of being more human than an e-mail and less expensive than a trade show. Companies can use them to promote themselves, thanks to branded content. But also, to train (traincast), inform and motivate their employees, a few minutes a day – microfragmentation of content.[36]

Many companies choose to promote themselves through this medium as it is ideal for communicating and motivating in a cost-effective, fast and customisable way. This is exactly what advertisers are looking for. It is the data generated by the platforms that enable innovation: from very precise targeting in real time through detailed knowledge of the audience, to personalised content for more efficient hypersegmented approaches.

Examples of companies that have invested in this medium are numerous: from Gatorade, with podcasts explaining how to turn defeats into victories, to Colgate focusing on synthesis (calibrating to the time you brush your teeth) to Microsoft talking about the future. Companies are also investing in sound brands (e.g. Mastercard has invested in the sound of its own brand), while local municipalities such as the city of Bath in England are organising headphone-audio tours. Gimlet (Spotify) and Crest Kids launched last year the voice-activated podcast Chompers (Alexa) that teaches children how to brush their teeth (funded by Oral-B and Crest Kids - P&G).

Among branded podcasts, we also find entities such as Netflix, which has been producing content for marketing purposes since 2017 (*We Are Netflix, What to Watch on Netflix, I Hate Talking About Myself, I'm Obsessed With This*). Podcasts, therefore, can also be an excellent source of inspiration for video.[37] In recent years there are several examples of podcasts that have become movies or Tv series, highlighting how the link between these two worlds is very subtle and lends itself to original and fruitful contaminations. Some important examples: Amazon Video produced *Homecoming*, a Tv series starring Julia Roberts from Gimlet Media's podcast of the same name; *Dirty John*, a podcast produced by Wondery, became a true-crime Tv series on the US Bravo Tv network (NBC Universal) in 2018 and was then also distributed by Netflix in 2019; Peacock (NBC Universal) produced a Tv series distributed in streaming from the crime podcast *Dr Death* (Wondery production); *Equinox*, based on the Danish podcast *Equinox 1985*, was produced by Netflix in 2019.

Staying on the audio-video theme, in December 2020, Netflix launched an "audio-only" feature in a test phase, currently for Android mobile devices only. This is a feature that allows subscribers to follow content without the use of visuals, particularly for stand-up comedy and sitcoms, an experience very similar to listening to podcasts.

Trends

It is complex to identify easily interpretable directions in the podcast galaxy. What is certain is that, in recent years, there has been a gradual establishment of the podcast as an increasingly solid consumption in many important markets, first and foremost the US – where the percentage of spoken content is steadily increasing, especially among young people – but also in Canada and Europe (the latter market, in comparison with overseas, still appears rather immature). The number of podcast listeners – while still far from Radio's mass audience, but steadily growing – has the advantage of constituting a niche in terms of personal interests, resulting in a high degree of attention and involvement. The economic weight of podcast revenues is also growing, but not alarmingly for the rest of the segments that make up the Digital Audio industry, especially Radio. There is still a lack of shared performance monitoring standards (for the purpose of advertising revenue) and effective monetisation strategies.

Especially in Europe, radio stations are now among the leading podcast publishers. Public platforms in Europe and in Canada are moving toward creating proprietary platforms for on-demand listening. In Canada, they are also establishing production cores exclusively dedicated to original podcasts, attracting hybrid expertise. In the United States, on the other hand, GAFAM are equipping themselves with new skills through continued acquisitions in the podcasting industry.

In Italy, the podcast market is still at an early stage, with an economic dimension to be built[38] and effective monetisation models (subscriptions and advertising) not yet brought into focus, but it certainly represents an area in strong productive ferment, supported by considerable attention from both the supply and demand sides. In Italy, podcasts have long been marginal, ignored by traditional media, but especially by publishers. The first podcasts arrived at the end of 2010, while the original ones only debuted in 2015. In the same year Spotify introduced the first podcasts within its streaming service, and in 2016 Audible arrived in Italy. Only in 2017, with the launch of Pablo Trincia's *Veleno*, a true-crime series released by the Italian daily *Repubblica*, did the culture of podcasts, as original productions capable of reaching a wide audience, begin to spread in our country as well.[39] Most insiders agree that 2020 was the year of podcasts for Italy. Undoubtedly, travel restrictions due to the outbreak of the health emergency greatly influenced digital consumption and gave a major boost to the dissemination of this (new) audio content, attracting the interest and attention of many. The podcast is now confirmed as a stable and non-transitory fruit of the digitisation process that occurred in the pandemic context. Although the numbers are still small, we are witnessing the consolidation of a new instrument in the media diet of a portion of Italians, especially among younger audiences.

Analysis of European data does not reveal neat and easily readable trends in the podcast galaxy, partly because there is no systematic research such as to make the data comparable to allow a "European" reading of the phenomenon. There are many dissimilarities in the surveys, not the least of which is listening frequency (weekly in the case of Spain and the United Kingdom, but monthly in France and Germany, for example). A further critical issue is the fact that the metrics used by the different platforms to build their rankings are not homogeneous,[40] and need continuous weighting (e.g., the analysis of conversations generated by podcasts) to allow an effective reading even for advertising purposes. What is certain is that there has been, in recent years, a gradual establishment of the podcast as an increasingly solid consumption in many major markets, such as the United Kingdom, Spain, Scandinavian countries, France, and Germany, where the pace and rates of growth vary, but are nonetheless all in the single digits. Young audiences in European countries are also the largest consumers of podcasts. However, it is interesting to relate the data collected on the podcast industry to that of audiobook consumption. In Sweden, for example, in 2020, it was not the podcast sector that gained directly from the crisis in radio advertising revenues due to the pandemic and the stop to commuting, but rather the aggregate of music streaming and audiobooks, which benefited from an increase in subscriptions and revenues.

In the United States, the podcast market is well established. Starting with the popular *Serial* series that in 2014 brought podcasts to new audiences, sparking advertiser interest and attracting new creators, the popularity of podcasts has been steadily increasing in the country. This appears to be the most consolidated market in terms of both overall reach and time spent listening to them (not to mention the binge listening habit[41]). The growth in interest covers most topics, but news and current affairs (not subject to regulation) dominate the rankings. On the industry side, large mergers and acquisitions succeed each other in the race to secure a dominant position.[42] Top podcast publishers, by number of most popular products, include iHeartRadio, NPR, Wondery, New York Times, NBC News, etc.

Risks and benefits

The most consistent element of risk for Radio broadcasting is probably the growing popularity of the podcast phenomenon in generations Y and Z, those who could most easily escape the attractive force of Radio. Another interesting fact, and potentially risky for PSM, is a widespread predilection for Spotify as a platform for listening to podcasts: a container increasingly perceived as capable of responding to different needs (see also Spotify's recent investments in audiobook) and capable of suggesting trending consumption to those who already choose this platform for listening to music. One of the dilemmas to be resolved, for example, is whether, and to what extent, we should be present on Spotify as Public Service operators, with playlists curated by personalities and, of course, original podcasts.

On the other hand, podcasting is an opportunity for PSM to preside over an industry of which it is ideally the most legitimate player in terms of expertise and prestige, as well as benefiting from the richness of the archive.

Retaining an audience through the "proprietary" and free Public Service-branded app, as BBC Sounds already does admirably in the UK, may also be the answer to the low appeal still shown by paid podcast services. It is worth the effort to solicit potential users, who are reluctant to pay for podcast subscription services, with a culturally appealing proposal already included in the fee that the Public Service can nimbly produce with the know-how it has.

Another opportunity for the Public Service is that, by investing in the podcast, it can build loyalty among audience segments that tend to be distant from radio consumption and be an attraction to radio for those younger generations that have approached (or will approach) the podcast without already being fans of some programme or broadcaster.

1.4.3. Music streaming

Music streaming platforms are emerging globally as the most popular way to listen to music, which has now become a liquid consumer good. After a long slump, the music industry's revenues have returned to growth in recent years, basically thanks to the income from the rights accrued on the playback of music on streaming platforms, which have been growing exponentially over the past five years. In the assertion of Rob Levine, editorial director of Billboard magazine, the streaming boom has caused a boom in music audiences, both for recorded music and music publishing.[43]

The music industry has been completely transformed by the "dematerialisation" of music and the disintermediation of its circulation, which began more than 20 years ago with the advent of Napster. On-demand streaming has represented a real paradigm shift, both in terms of cultural approach (consumer side) and business model (industry side), with the shift from owning individual content to accessing a catalogue of content. In the music market, in fact, streaming is configured as a service, meaning that it is no longer necessary to download a song for a fee.[44] This shift has been well identified by the replacement of the model on which iTunes[45] was based with that applied by Spotify. It has also helped the music market curb piracy: if Apple "created" the legal digital music market, Spotify saved it from piracy. Part of this shift was also facilitated by the development of early video-on-demand services such as MySpace, YouTube, and Vevo, which represented *ante litteram* music streaming for users, especially among younger people.

On-demand streaming, therefore, is a service that allows access to a (potentially unlimited) music library, in free or paid form, and direct enjoyment of individual content through a multiplicity of devices connected to the Internet (smartphones, tablets, PCs, smart speakers, smart earphones, etc.). All while respecting copyright and thus the artists and record labels who are repaid according to the streams totalled by each track, albeit not without controversy (especially in the United States, the United Kingdom and Canada) over the current royalty distribution model, which according to some aims at over-rewarding stars at the expense of all other artists.

The most widely used business model is the *freemium model*, which has emerged on the market thanks to the development of Spotify. Under this model, consumers can choose to use the service in its free version, which is generally limited in functionality and financed by advertising, or pay a fixed fee (subscription) to use the service in its full version.[46] Subscriptions differ mainly by type of user (i.e., individual, student, family), quality of music delivered (standard, high, immersive)[47] and additional fruition features (i.e., offline playback, number of accounts and devices that can be used at the same time, out-of-country listening).

Two categories of companies operating music streaming services can be distinguished:

1. the pure players of audio streaming, mainly European: Spotify, Deezer, Tidal, Qobuz, Soundcloud, Idagio;
2. large multinational companies, originating in the United States: Amazon Music (Amazon), Apple Music (Apple), YouTube Music (Google).

Finally, in North America, audio streaming services also include the AccuRadio and LastFM platforms, the latter focused on scrobbling,[48] as well as the radio aggregators TuneIn and iHeartRadio, which stream (simulcast) live broadcasts from hundreds of radio stations around the world (national and local) and on-demand content (podcasts) divided by genre, language, and geographic area. International big players also include the family of audio services (on-demand and live music, concerts, karaoke and podcasts) of the Tencent Music Entertainment (TME) Group[49], which are mainly present within the Chinese market, with a total base of more than 600 million monthly users (Kugou, QQMusic, Kuwo); and Pandora, a music streaming and podcast service active in the United States, belonging to the Sirius XM Group (Liberty Media), one of the leading US Satellite Radio operators.[50]

Digital giants Apple, Amazon, and Alphabet have adopted different strategies for their audio services:

- Apple, after changing the way people listen to music in 2003 with the introduction of the iTunes Music Store, launched Apple Music, a new streaming service integrated into the iTunes platform, in 2015. Unlike Spotify, Apple opted for a pure paid subscription model, keeping music content separate from "spoken" content (podcasts) with two different services: Apple Music and Apple Podcasts. Since

2015, Apple Music has also offered virtual Radio stations with partly automated related tracks inside, based on artists, tracks and genres. Since 2015 it has been experimenting with a global Radio station, Apple Music 1 (formerly Beats1 Radio), curated by international DJs, which was joined in 2020 by Apple Music hits and Apple Music Country.[51]

- In contrast, Amazon entered the US music market in 2007 with a DRM (Digital Rights Management)-free paid online download service called Amazon mp3, allowing individual songs to be downloaded and transferred to any device (including Apple iPods). To date, Amazon's music offerings consist of an "integrated system" with 4 levels of services: a "basic" and totally free version, Amazon Music Free, with only playlists and Music Radio (including advertisements); a "limited" version,[52] Amazon Music Prime, included in the Amazon Prime subscription and without advertisements (more than 2 million songs, playlists and customisable Music Radio); a "full" version, Amazon Music Unlimited, which is paid for but open to all; and a "super-premium" paid version, Amazon Music HD, with a lossless catalogue of more than 70 million songs in HD and a selection in UHD.[53]
- Alphabet's streaming service (Google + YouTube), reorganised in 2018 (formerly Google Play Music),[54] focuses instead on YouTube Music, which is available in a free version with commercial ads, and a monthly paid version (YouTube Music Premium) with advanced features and no ads. Features via mobile (app) of the latter include the ability to download videos and playlists to watch offline,[55] play music in the background when the screen is turned off and turn on audio-only mode without the video. The Mountain View giant, like Apple, has also opted to keep music tracks separate from podcast content with an *ad hoc* directory service (Google Podcasts).

In contrast to video-on-demand services, which can rely mainly on a library of exclusive video content, music streaming services share the same catalogues. In past years, Apple Music and Tidal have tried to deal exclusively with some artists, disintermediating the record companies (e.g. Jay Z, Madonna, Rihanna, Beyoncé, Kanye West), but they have remained almost isolated cases.[56] Competition in the music streaming market, therefore, is not based on the differentiation of the main service nor on the selling price, but on other elements of the offering, such as the implementation of fruition functions (features) that affect the perceived quality of the service itself. In other words, competition is increasingly shifting to capturing and enhancing consumer time through an increasingly engaging, seamless, multi-content experience.

Much is being invested in artificial intelligence and machine learning, of which discoverability is one of the key pillars along with ubiquity (multiple-device fruition) and personalisation. Discoverability is the ability of each service to introduce new music to its users in a personalised way (in some cases even by just searching for a part of the lyrics) through playlists built on the basis of their preferences (i.e., *Discover Weekly* and *Release Radar* on Spotify, *New Music Mix* on Apple Music), thus increasing the time spent within the platform.[57] While playlists on the one hand allow users to learn about new music, they also help artists increase their visibility (exposure) to listeners more likely to be interested, thus creating a virtuous circle,[58] i.e., an opportunity to increase their brand awareness.[59]

Another area that most streaming services have focused on in recent years is audio quality. All platforms start from a standard quality to a higher level, comparable to CD listening (Hi-Fi) and in some cases very high (Hi-Res). Entry level resolution goes up to a bit rate of 256-320 kbps with a typically lossy format (i.e., mp3, AAC) while Hi-Fi and Hi-Res formats (e.g. FLAC, ALAC, MQA) go up to lossless values of 24 bit/96 kHz (2304 kbps) and 24 bit/192 kHz (9216 kbps).

As noted above, in recent years music streaming services have also begun to offer "speech-only" audio content such as podcasts. This "multi-device" feature found in most audio platforms places the user at the centre of a potential integrated system that allows the user experience to remain unaffected (seamless) through whatever device is within reach.[60] The words of Daniel Ek, CEO of Spotify, effectively summarise the total audio[61] direction in which the streaming platform is moving, thereby expanding its user base to older age groups:

> We see an opportunity apart from where we sit today. An opportunity that will allow us to reach beyond music to engage users in entirely new ways. With the world focused on trying to reduce screen time, it opens up a massive audio opportunity. This opportunity starts with the next phase of growth in audio – podcasting.[62]

Spotify is characterised by a "specialised" business/technology model,[63] different from the "integrated" model of Apple or envelopment of Google-YouTube and Amazon, which provide operating systems by which they govern the activities of almost all devices on the market.[64] Launched in 2008,[65] the Swedish service with freemium business model has managed to establish itself in an extremely competitive and diverse global market. What has most differentiated Spotify from other services has been discoverability, which together with personalisation and ubiquity (multi-device experiential fluidity) are the main pillars of the Swedish service.

Trends

For those who want to listen to music, streaming platforms will increasingly become an established habit. Whether at home or on the move, Music Radio listening will be put under increasing pressure by the rise of subscribers to music streaming platforms. Across

EU countries, the US and Canada, at different speeds (North America, US in the lead, and Northern European countries travel faster), there is an increase in subscribers and users of both free and paid streaming platforms, especially in the under-35 age groups. This phenomenon is accompanied by a decrease in Radio listening in the 16-34 age group. The trend is clear and will continue in the coming years.

In Italy, in terms of the composition of music industry revenues, the overtaking of digital over physical took place in 2018. After the consolidation of downloading, led by iTunes, and the emergence of ad-supported video streaming with YouTube (2011), in the following years the main boost occurred thanks to the spread of Spotify (2013). The restrictions imposed during the health emergency greatly accelerated processes that were already in place, with a strong increase in digital consumption and a significant surge in premium subscriptions,[66] effectively ending the long phase of digital transition in the Italian music market. However, the numbers of paid subscriptions are still limited when compared with those in Northern Europe and North America, while online music listening time appears to be in line with the European average.[67]

The European music industry, while expanding and driven by the exponential growth of music streaming services, is growing at a much slower pace than the North American industry. The continent's three largest markets (UK, Germany, France) together account for more than half of the revenues of the entire region. A growing number of people are listening on-demand, but there are still large gaps among European countries related to the propensity to pay for a music streaming subscription. Sweden is the country where owning a subscription to a music streaming service is most popular, reaching nearly half the population,[68] but Denmark and the United Kingdom also have high service penetration rates. In the South (Italy and France especially, less in Spain) and Eastern Europe (Poland), on the other hand, the propensity to pay for a subscription appears much lower. The differences between these countries certainly depend on the higher purchasing power of Northern Europeans, but cultural factors may also play a role. In any case, streaming music listening is a growing habit in all European countries. The differences are significant not only with regard to the penetration rate of subscriptions, but also with regard to the time of use of these services.

In both North American markets, where penetration of paid subscriptions is very high and streaming music listening revenues crossed the $10 billion mark as early as 2020,[69] Spotify dominates among on-demand audio services. The other major players are the US-based Amazon Music, Apple Music, iHeart, NPR, Pandora, SiriusXM and YouTube Music, and Canada's Ohdio and Stingray. Interestingly, in Canada, more than one in two people listen to music on YouTube's platform at least once a month.[70]

Risks and benefits

For younger age groups, music streaming platforms are increasingly part of daily routines. Just as the generation of baby boomers who grew up in the 1960s remained fond of Radio and television the media that characterised that generation's adolescence, in the same way it is likely that the generation of young people who are now growing up accompanied by streaming platforms will carry this habit with them in the years to come.

However, the decline of music listening via Radio will neither be rapid nor uniform. For some segments of the population, in some regions, local, or regional and macro-regional Radio stations dedicated to music will continue to be successful for a long time. The general trend, however, points toward steady growth in the use of these platforms, which take listening time away from other devices, reinforcing the habit of accessing them at different times of the day. The amount of listening time people devote to media is growing, but this growth cannot be infinite, and some media will experience increased attention at the expense of others.

The steady growth in the use of music streaming platforms is a sign that more and more people are getting used to listening to music when they want, on-demand. For Radio this signal may also represent an opportunity to rethink its role as a publisher of sound content. Today, radio companies are no longer just producers of sound content, but also audiovisual content – as in the case of radio broadcasting – and interactive content, as in the case of Web sites, broadcasters' social media profiles and smartphone apps. A further step in the direction of rethinking themselves as cross-media publishers is to, on the one hand, forge alliances with emerging streaming platforms and, on the other hand, work on the development and innovation of their own proprietary platforms.

Alliances can be of various kinds, from radio stations sponsoring playlists, to popular radio personalities creating playlists, to jointly organising offline events.

It becomes vital for PSMs to invest decisively in proprietary apps, making them competitive in the market. In this regard, the paths to be taken seem to be mapped out by the British (BBC) and Canadian (CBC/Radio-Canada) broadcasters. In order to be competitive with multinational companies with large financial investments raised on the global market behind them, individual national public companies cannot rely on their own strengths alone. They must network with European Public Service companies to exchange expertise, standards, and technological solutions.

App development teams must compare themselves with other development teams in other European companies, and the EBU can play a key coordinating role in this. Algorithm-based recommendation systems that are as efficient as they are distinctive from those of private platforms should also be developed.

1.4.4. Audiobooks

The audiobook, as on-demand audio content, can be likened to the podcast in the mode of enjoyment, but from a purely editorial and production point of view it is a very different product. While the podcast originated as audio content, the audiobook is a derivative, an adaptation of another source, in this case a printed book. Moreover, in terms of format, audiobooks lack seriality, a peculiar characteristic of podcasts. According to the definition of the Branded Entertainment Observatory (OBE):

> audiobooks, while sharing the same format as podcasts from a technological and output standpoint, are audio content natively produced for visual enjoyment, for the eye, and only later adapted to be listened to.[71]

Audiobooks are a hitherto underrated segment of the Digital Audio world. Media and industry attention has focused on podcasts, where competition from publishers of all kinds has become very strong, while audiobooks have remained confined to the publishing world. Yet the most recent data tell us that in both Europe and North America there is a growing demand for audiobooks and the paid services that offer them. This demand, in many cases (such as in Denmark, Sweden, Poland and the United Kingdom),[72] is even greater than that for podcasts. Thus, the audiobook market, although recently developed, has strong potential and is proving capable of attracting more and more stakeholders in online production and resale.

The path of audiobooks, however, is not yet delineated as far as the economic formula of content offerings by the major players is concerned: there is a contrast between the "Storytel model", with a subscription to an unlimited catalogue of titles – widespread in Northern and Central-Southern Europe (and adopted by Audible for Italy and Spain) – and the "Audible model" (English-speaking countries) with a basic subscription that includes the "originals" catalogue and one or more monthly credits for the rest of the books. It is interesting to keep an eye on these two trends: for if in the future publishers in the US, UK, Canada, and Australia were to support a Storytel landing in these markets, it would force Audible to shift its model toward unlimited subscription to remain competitive.

Spotify, as part of its policy of broadening its offerings from music to speech, has also invested in the production of original audiobooks. Just from the success of the audiobook in Germany[73] and given the already rich presence of audiobooks on Spotify, both in German and English, Daniel Ek's platform has invested in the production of nine great public domain classics read by well-known voices[74] and promoted them in some test markets (Germany, US, UK, Canada, Australia).

The strong potential of the audiobook market is attracting major stakeholders, including producers, online retailers and streaming platforms. The integration of this content offering is, for the most part, recent. The market is expanding, and it is not only players in the publishing world that are strengthening its position. Even Netflix, for example, is gearing up for audio, and ByteDance (TikTok) is acquiring a stake in Zhangyue, a large digital publishing company in China. Bookwire has acquired Readbox and Amazon Audible has partnered with Waze, the Israeli mobile street navigation app. Radio-Canada, instead, aims to promote French-language literature with Ohdio.

Trends

The audiobook sector is one in which there are fairly clear trends emerging overall. There is good consumer penetration in almost all-important markets, with very well-established situations in the United States and Canada, Germany and Scandinavian countries. The audiobook is appreciated by Generation Z, but to a greater extent by the group straddling Generations Y and X (25–44-year-olds),[75] which moreover has greater purchasing power and consequently a propensity to pay for a subscription. In some European cases, the audiobook is growing even more than the podcast (although with low starting numbers, there are fast growing and promising trends).

In Italy the supply of audiobooks is represented by two main services, Amazon's Audible (11 thousand titles in Italian and 40 thousand in different languages) and Storytel (4 thousand titles in Italian between audiobooks and podcasts), as well as smaller services such as LiberLiber and LibriVox. The most popular model is unlimited subscription. Since 2016, many national book publishers have begun to diversify into this sector, also luring known personalities belonging to the entertainment world to lend their voices. Some have also struck exclusive deals with Audible and Storytel, in exchange for technology and studios for production. There is high growth potential, however, by targeting non-readers and weak readers who are a large segment of the population in the country.

At the European level, audiobook markets take on different scopes and characteristics in different territories. In Scandinavian countries, the picture that emerges is a strong predominance of the audiobook format with "unlimited subscription", that is, a subscription to streaming services that offer unlimited access to a catalogue of audiobooks. In these very mature markets, most platforms are owned by publishers (with the one notable exception of Storytel, which has acquired and continues to acquire publishers). Audible is not present, and Storytel's main competitors are Bookbeat and Nextory. Interestingly, the strategy of publishers in the Scandinavian countries is to maximise the user base rather than focus on content control.

This is a very different scenario than in major Western markets (except for Italy) where there are mainly publishers and distributors operating separately. There is also the fact that expansion of the format into less mature or smaller (in terms of number of users) markets – such as those in Southern and Eastern Europe – is complex because the cost of producing an audiobook is relatively high and is not offset by the meagre revenues that would return to publishers if they relied on a third-party unlimited subscription service.

In the UK, although there are services offering an unlimited subscription model (such as Scribd and BookBeat), these are a minority[76] and even UK publishers have been reluctant to embrace this model.[77] The main player is Audible (subscription with one credit for one or more audiobooks), but Kobo (subscription with one credit for one or more audiobooks), Scribd (unlimited subscription), Google Play Books (payment per audiobook) and BookBeat (unlimited subscription) also operate.

In both North American markets, Audible is so far the leading player. But now the exponential potential of the audiobook market is attracting major stakeholders, including producers, online retailers, and streaming platforms. The integration of this content offering is, in general, recent. Storytel and Scribd, two of the most prominent platforms, are entering the market with high valuations. Meanwhile, distributors are consolidating their position through publishers, bookstores (Audiobook store, Librivox, Bookwire), libraries (such as the Canadian library network Pret numerique.ca or Bibliostream) and independent networks. In the United States, the market is estimated at 131 million potential listeners. The production side is also growing strongly, responding to the high demand for audiobooks, and Hollywood celebrities are recognising the potential of the medium, lending their voices to even more performances.

Radio-Canada, to promote French-language literature, entered into an agreement with publishers in 2017 to offer a large catalogue of content free of charge and without advertising for audio readers. Interestingly, more than one in ten people in Canada listen to an audiobook each month[78]: on average, these are young, educated listeners with higher annual household incomes; in addition, Canadians from minorities with visual impairments listen much more on average, making them an attractive target audience for publishers.

Risks and benefits

The approach to consumption of audiobooks is also different from that of podcasts: data covering the German market show that audiobooks fall within a horizon of leisure and relaxation, while podcasts are chosen more for their educational or topical content. Podcasts and audiobooks prove to be compatible and complementary products to each other. The loser in both cases is Radio, from which both audiobook and podcast consumers claim to have taken away time and attention.[79]

This is a market that aims to engage non-readers or weak readers, and also to win them over through different forms of distribution, with an unlimited subscription model and a subscription + credit model. As can be seen from Spotify's recent interest in the audiobook sector, future investments in the sector will be decisive to complete its offerings, emphasising a further piece of the sound entertainment proposal, to date already present on the platform, but never with dedicated productions such as those launched in recent years.

The economic formula of content offerings by the major players, primarily Audible (basic subscription that includes the "originals" catalogue and one or more monthly credits for the rest of the books) and Storytel (subscription to an unlimited catalogue of titles), is not yet delineated. This uncertainty is related to the attitude of publishers and to the continuous updating of copyright regulations, which in some countries, for example, are allowing greater profit margins for the audiobook industry by reducing the costs of exploiting works.

In this overall indecision of the market, the role of a radio station, especially if it is a Public Service station, could be to offer this type of content free of charge by investing to take a central role in the audiobook publishing market, including through a dedicated app, and enhancing the radio archive of full readings. This is something that Radio Rai in Italy and Radio Canada, for example, have been dedicated to for a very long time.

Again, as in the case of original podcasts, rather than insisting on the target audience that is already fond of Radio, the production and distribution of audiobooks will have to target those who are not used to reading or read little.

1.4.5. Social audio

Social networks – almost all of them in a mature stage, with huge audiences both local and global – are key partners in successful communication strategies as they serve as promotional levers and international megaphones: to achieve a more intimate connection with audiences, to create events, but also to make Radio visual. In addition, like Radio, they act as an incubator of talent and are at the forefront of raising a new generation of creatives throughout the audiovisual environment, with an unparalleled effect of inciting fan bases. In contrast, social is a direct competitor in terms of audience attention, media content supply, and advertising revenue.

Social networks have also realised the importance of music and the audio world (like record companies on the other hand) and are developing their audio offerings. Since 2018, Instagram and Facebook have implemented new features by allowing music tracks to be played within their Stories. In fact, thanks to licensing agreements signed with record companies, it is possible to associate text, images and videos with favourite music tracks. The new music features also make it possible to display the information of the inserted track as well as a portion of the lyrics, further enhancing the artist's visibility.

But in the very last few years, a real "social audio" offering has been forming, i.e., those social networks that allow audio content to be shared among users. This, which is a novelty in the social media landscape, is still a fragile offering and its undefined business model seems to be expanding. The players in this sub-segment include both new services such as Clubhouse, Space, and Voicehub, as well as established social networks such as Twitter, Facebook, Spotify, and LinkedIn that are moving in this direction.

MAPPING SOCIAL AUDIO

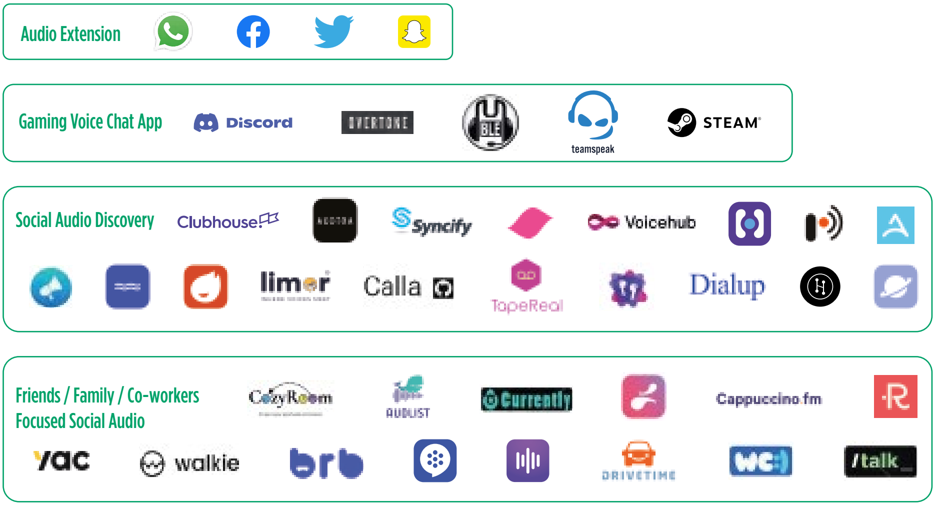


Figure 7 – Source: Marie Dollé: https://maried.substack.com/p/the-rise-of-social-audio-apps

In this still unstable picture, three macro-groups of trends can be identified:

1. Established social networks implementing audio extensions on the Clubhouse model, with the various features being worked on by Twitter, Facebook, Instagram, Spotify, LinkedIn.
2. Audio social imprinted on team working: YAC, Tandem, Walkie, Watercooler, etc.
3. Intimate audio socials for family and friends: Cappuccino, Saga,[80] etc.

Launched in California in March 2020, the Clubhouse app – which is somewhere between home parties and mega conferences – is available everywhere except China, where it was banned in February 2021. On Clubhouse there are no videos, photos, stickers or emoji, there is only voice, in an experience that is a bit like a roundtable in the form of a podcast with a participatory dimension. Clubhouse does not seem to have a defined business model, but so far it has attracted substantial investment and media attention.

Until the summer of 2021, one had to be invited to participate in discussions, like a party. This feature allowed developers not only to create hype around the app, but also to control its growth (Alpha Exploration Co. did not have the infrastructure to support the arrival of hundreds of thousands of users at once). Clubhouse allows direct contact with celebrities from all walks of life without leaving home: one of its major attractions is the presence of well-known personalities from the worlds of art, sports, politics, and technology, interviewed by celebrity hosts (Terry Crews, Ashton Kutcher, Oprah Winfrey, Bill Gates, Mark Zuckerberg, etc.). In July 2021, Clubhouse also signed an agreement with Ted Conferences. To add value to its content, it launched *Clubhouse Creator First*, an accelerator for content creators. The latter receive support from assistance in creating relevant content to dealing with advertisers.

However, we are talking about a phenomenon that has undoubtedly received extensive media coverage, but still affects a very niche sector of the population, especially marketing and communications professionals. Among the issues that Clubhouse will face soon there is the need to cope with GDPR (General Data Protection Regulation) in Europe, following the open investigation into the use of personal data, but also competition from new clone applications.

In fact, major players in the digital ecosystem (Twitter, Facebook, Instagram, Spotify, LinkedIn) are developing similar features to Clubhouse:

- **Twitter - Audio Spaces**: First introduced for a select group in December 2020, Twitter Spaces opened to everyone in May 2021. All users with at least 600 followers can host a space, discussion event, or exchange, expanding usage options. For example, NPR is using the platform to expand the audience for some important interviews conducted by the broadcaster. Chat rooms are also suitable for brands that see potential for conducting focus groups, or for users who want to practice a language. Kayvon Beykpour, Twitter's Head of Consumer Product, says[81] that although the most successful Spaces are the ones with big names like Elon Musk and lots of people listening, already from the beta version one can see that most Spaces are made up of no more than ten people talking about their interests, informally. Twitter also acquired[82] the social podcasting app Breaker, which had been active since 2016 and allowed people to share and comment on various podcasts.
- **Facebook - Messenger Rooms**: after Twitter, Facebook has also decided to introduce a feature called Messenger Rooms. These "rooms" are more exclusive: only public figures and selected American groups can create audio rooms. However, all Facebook users can listen to the discussions, if alerted to the event through the newsfeed or through notifications.
- **Spotify - Greenroom**: In March 2021, Spotify acquired Betty Labs and its Locker Room platform, an audio social network for sports fans. Three months later, it

launched the social chat app *Greenroom*, where people comment on sports events, eSports, big interviews, etc. The event format is well suited to live interactions. Sports organisations use Greenroom to bring players and fans together after the game to have a dialogue and get feedback from participants. Unlike Clubhouse, Greenroom allows written discussions along with recording and podcasting of audio conversations.

Risks and benefits

The segment of the ecosystem we have just described is, of all, the newest, most fragile, and imponderable in its trend lines. There is no guarantee that social audio apps will succeed in becoming mainstream, breaking out of the "ghetto" of the narrow communities of "tech-savy" and marketing consultants that are dominant within it for now. Podcasting took ten years (2004-2014) before generating volumes of usage that could justify its transformation into a real industry capable of opening a market.

Social networks have begun to massively exploit the potential of audio and currently seem to be almost more of a competitor to podcasts – because of the kind of freedom of content and absence of format – than to Radio. Yet, the "live" nature of these apps is potentially far more dangerous than podcasting for Radio: while streaming and podcasting platforms offer the listener two typically radio forms of content – music and speech – but in an asynchronous, one-to-one mode, social audio is the only competitor in this ecosystem that offers the same thing as Radio: live broadcast content, consisting for now only of the spoken word. Social audio is a "real-time" medium like Radio, and it is a potentially "community" medium, like Radio, though aimed at micro-communities for the time being. During Clubhouse's brief fashion in Italy, many curious people abandoned listening to morning radio press reviews and ventured to listening to live press reviews on Clubhouse.

The risks to Radio now seem extremely limited, but that may not be the case in 5-10 years.

Right now, social audio apps represent more opportunities than risks for Radio. Radio stations can "preside over" these spaces to retain their users, either by organising talk-show formats with their own personalities or by experimenting with new voices and talk formats with more freedom and less pressure due to the need to make ratings.

Currently, this is something to be monitored, as in the very early years of social media. Those radio stations who first "colonised" Facebook and Twitter and dedicated an adequate editorial team to them have since found themselves with a larger and more loyal community over the years. From this point of view, social audio apps are an evolution of social media and could help bring back some of the centrality of audio. The important thing is to preside over this space with creativity and minimal investment, monitoring its actual growth and cost-effectiveness.

1.4.6. Smart speakers and voice assistants

Inside our homes over the years there have been a series of audio devices: the Radio receiver, i.e., a device that played only the radio signal; the home stereo, which, on the other hand, was already more "multi-media", because it allowed us to choose among different sound sources (Radio signal, cassettes, record player, and CD player); and now smart speakers, Internet-connected audio devices (mainly owned by the multinational GAFAM companies) that respond to a voice command. Smart speakers exponentially broaden the spectrum of sound sources that can be accessed from home: through them we can listen not only to Radio stations or on-demand music, but also retrieve information from Web sites (weather and news) and listen to audiobooks and podcasts.

Today there are more than seven billion devices in the world that are equipped with a voice assistant.[83] In addition to smart speakers and the smartphone, which has become the world's most popular "multi-function" device par excellence, more and more home appliances and home automation items are now set up for voice interaction. Not to mention the nascent market for hearables (i.e., smart headphones),[84] which is growing rapidly. "Fifty percent of people living in industrialised countries who interact with computers will use voice by 2021", predicted Amy Webb of the Future Today Institute in 2018 during the SXSW (South by Southwest) event. Today, there is no doubt that there is strong interest in voice assistants, although manufacturers have not yet definitively reassured consumers as to the presence of a device in the home that is full of microphones, constantly listening, and capable of recording personal content (such as a conversation) in its databases.

The rise of smart speakers on the international scene appears to be quite decisive when one considers that Amazon's Echo, the first to go on the market, arrived in November 2014 only for the United States and the United Kingdom; much of Europe has only been able to benefit from Alexa's services since 2017, except for Ireland, France, Spain, and Italy, which had to wait until 2018. Similarly, Google Home (now Google Nest) was launched in North America in November 2016, only to be rolled out in Europe at the turn of 2017-2018. Similar, too, was the development strategy adopted by the two companies, which began by focusing on the software side with the development of their respective voice assistants and was only later completed by fine-tuning the hardware. To date, apart from Apple's Siri-based HomePod and Microsoft's Harman Kardon Invoke that uses Cortana, almost all smart speakers produced by third parties include voice assistants from Google or Amazon.

The new voice space revolutionises the way people connect with media. As Satya Nadella, CEO of Microsoft, states:

Your brand must have its own agents, who can talk directly with customers and converse through multiple digital assistants.[85]

With no more visual cues, relating to a media product requires auditory memory and exact use of names. Just like media brands, audio products must have a strong image and be part of the whole evoked by the consumer. Much depends on the words used at the time of the voice command. It is a race to determine which brands are strong in the audio space and in the development of applications that allow consumers to access content.

For example, SRC (Societé Radio Canada) has worked closely with developers on the production side. It was a launch partner for Amazon's Alexa in 2014 and for Google Home and Google Home Mini in 2016. Radio-Canada's "Radiojournal" became the first audio newscast accessible through Apple's Siri.[86] In 2018, Google also collaborated with publishers – including The Associated Press, Hollywood Reporter, Universo Online, and on the international side, the South China Morning Post – to develop a new audio news format.[87]

Trends

Quite all research companies agree that the global market for voice assistants is expected to grow at double-digit rates between 25 percent and 30 percent in the coming years, reaching a total threshold of $6-7 billion in 2025. In the coming years, China is expected to dominate international market sales, followed by the United States. At present, Amazon (leading the way) and Google practically cover the total sales market.

In Italy, sales of smart speakers are increasing at the expense of connected audio speakers, which are decreasing in popularity.[88] Analyses carried out by TIM's Research Department lead to estimates of a decisive growth of the Smart Home market in the coming years, with a total value expected to exceed €1 billion by 2023 (+26% average annual increase), supported by the contribution of smart speakers, which would reach €236 million (+30% year-on-year).[89]

Although they still represent a niche, the trend is evident throughout Europe: smart speakers are the home receivers of the future. Unlike older terminals, however, they make it easy to reach a wider spectrum of sound sources. Recent EBU research[90] indicates that more than 60 percent of daily listening via smart speakers is devoted to Radio. The data point out that smart speakers are primarily used to listen to music and, to a slightly lesser extent, radio programmes. Podcasts and audiobooks, in comparison, turn out to be much less popular choices.

The North American market (the United States and Canada follow a similar trend) is growing strongly, and now more than one in three people in the United States owns one of these devices, a percentage that becomes one in two among remote workers.[91] It is also worth noting that in both the United States and Canada the number of devices per household is growing.

Risks and benefits

From the smart speaker segment, the risks to Radio are the multiplication of sound sources that can be reached in the home. The home space, as well as the car cabin, are “invaded” by more sound sources coming “from outside”. If in the automobile cabin it is the Radio that must face the new competitors alone, in the home it is Radio and television that find themselves facing a new device with which to share the attention time of those who inhabit that space.

By integrating the functionality of technological devices such as stereo and radio, smart speakers represent a new way for radio programmes to “enter” the home space. Indeed, if the use of smart speakers for listening to music is prevalent, listening to radio broadcasts is the second most popular choice, by a wide margin from the demand for podcast and audiobook playback. The increased presence of smart speakers in the home could thus be an ally of radio stations in growing their home presence, also aided by the impetus given by the pandemic and the resulting change in habits, which may not necessarily settle over time.

Radio companies must make sure that they are “present” in this market and develop partnerships with manufacturers, optimising their offerings for these devices. In the next five years, we expect them to still be widespread in a narrow segment of the population, but at the same time economically highly prized, with greater purchasing power and cultural capital than the average population, thus highly attractive from an advertising point of view. Moreover, in the long run their presence will also increase in the most popular segments, at uneven and nonlinear rates across age groups and sociodemographic classes.

1.4.7. Connected cars

By connected cars we mean those cars equipped with multimedia devices connected to the Internet and mobile phone networks, allowing the driver to interact with his or her smartphone or access the network directly through multimedia devices integrated into the dashboard. Once the unchallenged domain of radio, the dashboard itself is becoming an increasingly contested strategic space for various players.

At present, throughout Europe, FM allows about fifteen Radio stations, generally national, to be properly listened to in the car. This has allowed few Radios with quality offerings to be listened to, despite the progressive enrichment of the sound alternatives in the car (Philips cassette, CD players and more recently, listening to the musical repertoire stored in one’s personal smartphone). All of this is moot with the connected car. Aggregators and applications for managing the connected car become not only the obligatory step for listening to Radio in the car, but also and especially the vehicle for accessing other sound services in competition with radio stations (connection to streaming platforms for listening to music, podcasts, audiobooks).

The automobile is becoming a highly competitive territory with important implications not only in terms of the readiness of infotainment systems (Apple, Google), but also in terms of the choice of supported digital audio services, closely related to the use of IP or DAB/DAB+ technology. In this regard, EU legislation has stipulated that radio sets (home + portable) and car radios, in Europe, must be equipped with the dual FM/DAB+ reception system as of December 2020. In North America, on the other hand, DAB has not caught on and the main transmission mode is satellite.

Among the methods used to connect cars to the Internet, one of the most popular involves the use of external applications that allow the passenger compartment to communicate with the driver's smartphone. Generally, these applications provide users with rather basic functions related to playing audiovisual content, receiving notifications or information, and making calls, and are often accompanied by a voice assistant that allows actions to be performed without the use of hands. Some of the latest cars include the integration of voice assistants directly into the vehicles, although the functions available appear similarly related to entertainment, information, and phone calling only. This is the path being pursued: the integration of a complex and comprehensive operating system that can control any aspect and function of the car.

Apple and Alphabet (Google-YouTube) have for several years now made agreements with several automotive brands (e.g. Ford,[92] BMW, Mercedes) to install their infotainment systems, CarPlay and Android Auto, on new connected car models. In contrast, and less widely used, Amazon launched the Echo Auto device in 2020, specifically targeting the market for older vehicles, i.e., those without smart-type equipment. The available features are not limited to music playback, but also allow for directions on weather, calendar, or traffic. These PDAs (Personal Digital Assistants) can sport distinctive elements, such as exclusive wake-up words, personalised voices, and automotive brand-specific commands. Spotify has also entered this segment with the launch of Car Thing in 2021, a kind of modern car radio equipped with a touchscreen display and a knob with which to listen to the streaming music service in total continuity from the smartphone (ubiquity).[93] The object natively integrates the "Hey Spotify" voice command that allows the user to search within the library.

Trends

In Italy, connected cars make up about half of the car fleet on the road.[94] Cumulative sales of DAB/DAB+ receivers, including devices mounted inside cars, put the country in third place ahead of France, which is growing at rates like Italy's, and behind Germany and the United Kingdom with significantly higher numbers. The most popular devices are GPS/GPRS boxes for tracking and recording driving parameters for insurance purposes, but growth is driven by cars connected via SIM or through Bluetooth systems. Market data reflect consumer behaviour: more than half of consumers plan to purchase a connected car within the next three years.

Broadening the view to Europe as a whole, it is predicted[95] that by 2025 one in five connected cars will have 5G connectivity on board, and by the same year, Germany is expected to have 9 percent of the world's total connected cars on the road, followed by the United Kingdom with 6 percent and France with 5.7 percent. The most popular app currently used in Europe to connect the smartphone to the driver's dashboard is Android Auto.

In the United States and Canada, since 2017, almost all new vehicles have been equipped with a digital dashboard that carries infotainment systems that are activated by connecting the phone to the Bluetooth system or through Apple Carplay (since 2014), Android Auto/Google Assistant (2015) or even Amazon Alexa (2017). A further example is the US broadcasting company SiriusXM, which developed the digital dashboard for cars to capture satellite signals and then established partnerships with automakers (Buick, Cadillac, BMW, Volkswagen, Chevrolet, GMC, Audi, Ford). The dashboard is a strong feature because of the entertainment options it offers, as well as the convenience and safety it provides. However, AM/FM radio remains very much listened to: audio consumption data from Canadian motorists[96] prove this. In any case, there is a fragmentation of listening time spent in the car, divided between consumption of personal playlists and music on CDs (declining), podcasts, Satellite Radio, and Web Radio.

Risks and benefits

The risk for Radio is a decrease in listening time in the car: indeed, it can be expected that a large share of the attention hitherto devoted to Radio inside the car will face competition from other players, such as Spotify, Audible, Storytel or Apple Music, in the coming years.

The gradual renewal of the car fleet will also lead to users who have so far been unable to afford to buy a connected car being able to take advantage of these additional services, taking away listening time from the Radio: the journey from home to work always has the same duration, therefore, the driver's listening time for sound content remains unchanged. However, if the number of sound sources available to the driver increases, this listening time is likely to fragment and spread across multiple sources, very unevenly across age and cultural capital. The older generations who grew up with in-car radio will remain loyal to the medium, but the adults of the future who are now becoming accustomed to the use of streaming platforms will also carry this habit with them into the cockpits of the cars they will buy in a few years' time, which will be increasingly "connected". Connected cars, therefore, could pose a threat to the stability of the medium, which should be averted by offering the listener greater flexibility in choice and introducing the visual aspect.

Radio still has great advantages, such as live listening to programmes capable of providing a collective identity for listeners, a sense of belonging to a community, as well as the ability to inform in real time, two features that are difficult to replicate by all other competitors. Entertainment, personality-driven programmes, and information (both real-time updates and in-depth reports) will continue to be a factor in Radio's advantage, albeit in a regime of listening time likely in slight but steady decline, spread unevenly across the population. Both in Europe, with DAB+ technology, and in North America, with digital satellite, the default presence of receivers in next-generation cars may represent a great opportunity. Both technologies consume less power than FM, increase offerings, particularly thematic, and improve signal quality. Interest in newly available channels and in older channels with greater reception quality could offset, in part or to a large extent, the loss of attention to FM radio at the expense of other devices. DAB+ and satellite radio allow publishers to maintain control of their broadcasting: thus, it will not be the (expensive) American-controlled and constantly updated technologies and algorithms developed in Silicon Valley that will affect Radio reception. In addition, offering different thematic music channels could, for some age groups, prevent or alleviate future shifting towards music streaming platforms. The important thing, however, is to act quickly to retain new listeners to the use of these technologies as soon as possible, developing listening habits that can then take root over time.

1.4.8. Other players in the Audio-Sound ecosystem

Although there are no homogeneous trends, this section brings together data and reflections on phenomena, services, technologies, platforms, and entire sectors of the cultural industry that in some way, directly or indirectly, insist on the production and consumption of audio and should therefore be monitored. They have different and non-comparable market sizes, budgets, and investments, but they are part of the contemporary media diet and in some cases contribute, like the segments previously analysed, to the audio entertainment of millions of people. These players are video games (and streaming game sessions), TikTok, and other voice or NTTS (Neural Text to Speech) services.

Video games

The global consumer games industry is estimated to reach a value of $198 billion by 2024, excluding hardware and device sales, augmented reality, virtual reality, and advertising. This prediction, reported by Wunderman Thompson, is related to the fact that video games are increasingly the horizon for a variety of entertainment, social or business activities, from attending a concert to a holiday event to organising a political protest:

> Gaming is no longer just the place for gaming. […] gaming is set to emerge as the next dominant technology platform, just as search engines, cell phones and social networks have redefined industries in previous decades.[97]

The extension of gaming to all spheres of media experience brings to the attention of any media sphere the video game industry and online gaming practices, whose market value has reached impressive figures no longer only in North America but also in Europe, and massively involves very young people of both sexes. With respect to the gamification phenomenon of non-strictly ludic domains, it is interesting to report on the educational experiments carried out by Poland and the Netherlands, which were the first to introduce the video game tool as a teaching support in Europe. The Polish approach included the introduction of the game *This War of Mine*, inspired by the conflicts in the Balkans, among the study texts for high school students, as it would support the teaching of topics such as sociology, ethics, philosophy and history by confronting players with moral dilemmas to overcome in order to obtain food, medicine and shelter.[98] In the Netherlands, on the other hand, a refresher system for teachers has been developed that is useful in providing basic tools for turning popular video games into educational tools. Prominent among the examples cited is the idea of using *Assassin's Creed* to explore ancient Greece, or *Minecraft* to illustrate construction methods.[99]

From the perspective of the audio sector, what should be observed about this compartment is that sound has become a kind of connective tissue of the entire video game social experience. This happens in two prevalent forms. On the one hand, the conversational form has long accompanied – through VoIp services such as Discord first, or in Twitch's "Just Chatting" channels later – online gaming sessions. It is precisely the chatting category that is the most followed on the Twitch platform, even in the absence of gaming sessions, where the contents of the interaction are often referred to a media environment that makes use of multiple media coexisting live. Sessions containing reactions to Tv shows, already present on YouTube and soon to turn to Amazon's platform, are well known too.

Also of interest is the musical aspect related to gaming – as enjoyment of diegetic music and sound effects of various kinds – or in the sharing of playlists in gaming communities. Then there is the virtualised evolution of live events within online gaming systems, such as the performance of Marshmello,[100] an American producer, DJ and video gamer within Fortnite, followed by rapper Travis Scott's concert in the same game,[101] which in April 2020, at the height of the pandemic, attracted 12 million people live and as many in streaming shares.

Risks and benefits

The main concern related to this industry is the type of consumption it stimulates: immersive and totalising, able to tap into the ludic impulse in its collective and shared version, and above all, able to replicate that culture of live output that has made the fortune and history of Broadcasting for a century; it is these companies such as Twitch.tv (note not coincidentally the suffix "tv" in Twitch's domain) which now propose to "absorb". The potential convergence of the music industry toward the video game industry, whose business models seem to adapt much better to digital disruption, is also a risk factor for the media world that bases its offerings on music and its promotion.

There are media that are not originally created for sound purposes but are experienced as such, used as a listening experience while doing something else such as playing games or watching someone play. This need can only be carefully monitored by Public Service operators who, while having an entertainment mission among others, are institutionally at the antipodes of the pervasive reality of gaming that drives the video game industry worldwide.

One cannot be too broad, one cannot become a videogame publisher overnight, either for educational purposes or to chase age targets far removed from Radio consumption, such as Generation Z and soon Generation Alpha. But there must be planning in choosing Public Service actions and strategies in the online and offline video game world, to stem its encroachment and use it to one's advantage.

From designing video games as ancillary content to mainstream audiovisual productions, to organising events within live streaming platforms for gamers and/or online games, it is appropriate to start with gamer communities and build narratives that incorporate them and their social imaginaries.

TikTok

Music is the universal language of TikTok, and in this huge container of an estimated billion monthly active users worldwide, each song is part of a unique weave of emotions, beats, lip-sync, and dance steps; this is where the need for a collective musical experience during the health emergency was nurtured. "Where visual social media such as Instagram tend to focus on images over text (Leaver et al. 2020), TikTok prioritises sounds over images"[102] and the creation of sound memes based on clips of remixed or reinterpreted songs or on spoken dialogue. These sound memes are the organising principle of the platform, the model-guide for the creation of posts, the way through which users navigate the platform to look for new trends and content, and thus the basis for the success of the songs used.

The stories and short videos of Facebook, Instagram, Snapchat, and TikTok are the MTV of this decade: among the many participants in the new Audio-Sound ecosystem, the audience is now at the centre of the interactions and creation processes. Through music and the universal language of emotions, jokes, and dancing, TikTok is causing many songs from past decades to be rediscovered by a new generation of listeners, becoming a powerful promotional lever.

> We will continue to work hard to make TikTok a platform that supports artists and encourages musical engagement and discovery.

This is the mission of Ole Obermann, Global Head of Music at TikTok.[103] In fact, TikTok has signed agreements with major record companies, Warner, Universal and Sony, to make their artists' music available for video creation on the social platform. It has also developed a music channel for the US-based SiriusXM and Pandora. TikTok Radio will have creatives, trendsetters and TikTok DJs as hosts, including young influencers. All this with a twofold goal: for SiriusXM to rejuvenate its audience, and for TikTok to provide itself with a more direct means of access to the radio universe.

On the audio side, each TikTok post features a round rotating button in the lower right-hand corner that tells the story of the sound track on which the post is based: from there one discovers, fixed at the top, the original video that first debuted that sound clip on TikTok, sees a list of all posts that have used the same clip, and can access the "use this sound" feature through which users can create their own video with the same background, adjusting its volume and/or overlaying their own dialogue. As Abidin states,

> The 'modelability' (Leaver at el. 2020) of background audios has been central to viral trends on TikTok and is perhaps the most innovative feature of the app.[104]

In addition to reusing and remixing audio clips and music, TikTokers (or Musers)

> also interact with other original audio models through 'duets.' Duets juxtapose videos side by side, can be viewed in tandem, and are often used by TikTokers to 'react or respond' to an original video, replicating it for comparison or adding comments with compliments or criticism. In some cases, TikTokers also have dedicated accounts to generate original audio clips with the intention of having others use them in their videos.[105]

This soundtrack bricolage nurtures an emotional attachment to sound and thus represents the potential strength of this social network in establishing itself among the various sources of discovery of new music, or rediscovery[106] of old hits and consolidation of musical passions.

Also obvious are the effects of music socials such as Vine and Musical.ly – ancestors of TikTok – in the transformation and shortening of hits[107]: with TikTok, the song must be identifiable and compressible into one or more catchy, self-contained 15-second parts. "The music industry has revolutionised and changed from the ground up the way today's songs are structured, resulting in a growth in the popularity of catchphrase-rich"[108] and shorter songs on average, a trend that had already started with the consolidation of the music consumption model through streaming platforms[109] and was already influenced in the past by stream media.

Further effects of TikTok on Broadcasting and the media industry, this time less predictable, concern the transformation of the language of news,[110] which in some cases – that of selected news programmes or newspapers, including the Washington Post, Le Figaro, Bavarian Radio, Hindustan Times, Huff Post, Antena3 Noticias, CBS This Morning, monitored for a year at the turn of 2019 and 2020 – has adapted to the logic of social media (with unpredictable long-term reputational results). These news outlets and programmes are on TikTok to position "their brand and showcase behind-the-scenes work in an informal, musical atmosphere that seems appropriate for the social's audience. They also do so with a fun, simple and appealing tone, seeking a balance between information",[111] data, positive emotions and empathy. What characterises the very short TikToks that selected news media outlets disseminated (average sample length is 22 seconds) is the heavy use of audio and video editing capabilities and its most popular elements: text, transitions, filters and visual effects, stickers and gifs.

Risks and benefits

In the battle for user attention, TikTok is a very refined tool: an app that prioritises personalised proposition (by opening the app one finds oneself consuming only videos that are related to those one has interacted with in the past) and wraps each user in his or her own filter bubble, in a continuous stream of very short user-generated video content. In addition, its straightforward approach to creating and uploading videos with a quality standardised to the platform presents a very low entry threshold for new users and allows one to reach a very large audience even without having many followers, thanks to the cataloguing of trending audio clips, video filters, and the immediacy of the whole process.

The overall experience achieves a profound mode of engagement, which moreover becomes one of its most fascinating features, namely the fact that it does not provide a new way to "flatline online content and engage groups of users but constitutes an aesthetic and design rules through the app interface"[112] that are outside any other social tool. This experience is primarily aural, creatively handling sound and fuelling on-demand music consumption; thus, a mode of access to music that Radio is suffering, especially with reference to the younger generation.

As mentioned, TikTok does not welcome content that exists outside its "cage" but rather forces each sound and video clip to fit the interface, creating an alphabet of sound memes and video effects that is highly successful. It is here that Radio can react to promote its brand and translate its sound content, musical and otherwise, while being mindful of TikTok's ambiguity, which is under indictment for issues related to "privacy, censorship, cyberbullying and security, as well as concerns about social media addiction, encouraged by algorithmic recommendations".[113] The strength and reputation of the Public Service can accompany the challenge of translating its role as a cultural industry and news media into the language and style of the platform in order to retain the audiences of the future.

NTTS (Neural Text to Speech) technologies and voice services

The human voice is the raw material of Radio. Its attention-grabbing power has been and is being studied by every discipline, from psychology to engineering. Therein lies the common denominator of the services presented here, which could have found a place in other sections (smart speakers or connected cars, for example) but which it is useful to isolate to emphasise the most essential component that originated them – the power of the spoken word – and the striking contiguity with the world of radio orality.

The following are some developing services that should be monitored:

- **Dubbing technology - Deep Dub:** This smart dubbing technology developed by an Israeli start-up aims to transpose an actor's voice into any language, in order to dub a series or movie without the help of voice actors.[114] The need for such a service arises at the same time as the massive growth in demand for content caused by the expansion of video streaming platforms: saving on dubbing time and costs is thus the main advantage, in addition to the aesthetic challenge of reproducing an artist's voice in languages other than his own and those he can speak.
- **Text-to-audio conversation - Amazon Polly:** Polly is a service launched by Amazon in 2016[115] to turn a piece of writing into a real conversation, enabling voice features to be developed in all kinds of text products. This system leverages advanced deep machine learning technologies to synthesise speech that resembles human speech and makes use of different natural voices in many languages, providing for a "Newscaster" style and a "Conversational" style. Amazon Polly's customers[116] include several news outlets and even a Japanese FM Radio station, Wakayama FM, which to keep costs down has dispensed with speakers without sacrificing speech qualities.
- **Audio text selection service - Curio:** Curio is a service usable through apps. It seeks to promote articles from more than 50 English-language newspapers read aloud by professional speaker and narrator voices, offering a selection of thematically organised news items. Thus, the pillars on which Curio is based are the search and promotion of significant journalistic material, its cataloguing, and the gradual and

increasingly accurate personalisation of the offering through profiling. The app is ads-free and offers a free plan that allows listening to ten articles per month, as well as a subscription with unlimited access.

Risks and benefits

Although they are different services, even at the level of business development and size, and moreover not easily mapped on the exclusive European territory, the players described here are all deeply involved in the economic and symbolic exploitation of the power of the human voice – real or synthetically reproduced – that is the raw material of Radio.

Specifically, the Curio app on the one hand gives a great deal of textual content a second life in sound, enhancing the branding of original headlines and amortising the production costs of quality information, and on the other hand exploits the potential of audio by foreshadowing possible competition to more established radio formats such as the daily press review.

Voice reading or playback services in combination with artificial intelligence, such as Amazon Polly and Deep Dub, are a horizon of potential erosion of the differences between written, audiovisual and sound media in terms of specificity of language and production skills on the one hand, and the proposed experience of enjoyment on the other. This is another area where Radio's competitive advantages as a guarantee of quality vocal expression must be exploited to the fullest.

It is appropriate to rethink these technological dynamics as a driver for everything in the audio industry: this is an acceleration in the industry that was unprecedented except in the mid-1990s, with the landing of digital sound formats on the Web.

Radio can forcefully reclaim the role it has been playing daily for a hundred years, that is, as an oral information tool capable of naturally softening the rough edges of a written text read aloud. It can also take advantage of the most advanced technologies by introducing formats that provide for their use and by reasoning from the perspective of coexistence and aesthetic experimentation rather than rejection or empty competition, similar to what happened in the recording industry with the introduction of autotune, which originated as an opportunity to correct flat or out-of-tune notes and later became a distinctive aesthetic feature.

Challenges and future of Radio in the Audio-Sound ecosystem

The Audio-Sound ecosystem we have mapped so far (more complex, global, saturated) certainly shows growth, with increasingly competitive players and more and more established consumption habits, but if we compare audience volumes and economic revenues of this ecosystem with Radio-Sound, we still notice how Radio is a much more widespread medium, producing even higher revenue volumes than the individual players in the Audio ecosystem. The difference is that the former is expanding, while the latter is slowly shrinking. The Audio-Sound ecosystem is a small galaxy colonising new spaces of everyday life, while Radio is a large galaxy losing a few pieces, but it is still central to the media diet of North Americans and Europeans and will be for a long time to come. Although most people continue to be reached by both analogue and digital radio stations every week, we are seeing a slow but gradual decline in the long run.

To counter this trend and keep pace in a constantly evolving ecosystem – characterised by acquisitions, partnerships, restructuring, dematerialisation, talent development, and investment in content – agility and speed of reaction are needed. A passion for Audio could enable public broadcasters to cope more efficiently with the trials of the future: niche markets, new identity realities, hyper-segmentation, national, regional, local content availability. Paradoxically, it could also enable Public Radio to better fulfil its traditional mission with regional, national, and international audiences by more effectively presiding over all "interstitial" contexts of potential listening, perhaps identifying new ones, in terms of space and time (inside and outside the home).

In this scenario some directions prove particularly fruitful for Radio broadcasting: digital DAB/DAB+, radiovision, digital online, automobile, and on-demand content. The first three refer to distribution, an element that brings with it value in terms of scalability of the offer, as well as widespread presence on all platforms (to this is increasingly linked the issue of audio quality of the Hi-Fi/Hi-Res Radio signal). The fourth refers to the environment that has always been the privileged place of listening to the medium, but which is becoming the terrain of greater competitiveness in terms of technology (DAB+ and IP) and audio-video priorities (with implications in terms of editorial and advertising control). Finally, on-demand audio content (in replication but above all native original) is a format that could represent the element of differentiation with respect to linear offerings, by intercepting new needs, audiences and financial resources (including paid ones).

All of these and other potential paths to be taken require a huge allocation of resources, necessary to support competition in the new Audio-Sound ecosystem. Radio companies, both public and private, will have to invest to develop technologically innovative solutions, support the spread of DAB+, devote themselves to audience engagement on social media, form commercial partnerships with various players (first and foremost the automotive companies), and produce new content (podcasts, music playlists, and audiobooks). If in the past Radio broadcasting had a significant income-generating capacity in the Audio world due to the simple possession and control of the "broadcasting media" (frequencies), today it is not the only one with the tools to push content to listeners. In order to keep their audience base intact, increase it in some segments of the population, and limit decline in other segments, radio publishers are being called upon to invest a great deal, probably much more than they can afford, in conjunction with a crisis in the advertising model that may not get much worse in the short term, but will at best stabilise.

Against this backdrop, Public Service companies will have to be ready to respond, transform their organisation, forge alliances, and have their teams acquire new skills. Change is a challenge for public broadcasters whose mandate – defined by law and accompanied by a variety of guidelines – hampers both their flexibility and speed of reaction, their ability to transform rapidly and adapt to new market realities.

On the other hand, they may also have an advantage: like all public actors, they can drive change and innovation by making long-term investments that do not produce immediate profits. Digital enables them to combine yesterday's ambitions with today's dreams. Provided, of course, that they successfully pave their way through the obstacles ahead.

Notes to the First Chapter

1 P. Diaferia, "Creative Chairman of Special Teams", in A. Pomaro, Voice Technology. The new challenges of conversational marketing and digital transformation, Dario Flaccovio Editore, Palermo 2021, p. 24
2 Ivi, p. 37
3 A. Pomaro, Head of Voice Technology, AI Conversation Designer, Voice UX and Head of SEO at Site By Site
4 N. Polla Mattiot, "From digital generation to voice generation", in Il Sole 24 Ore, 20 February 2020
5 During the coronavirus pandemic, in addition to the usual entertainment screens, the boom of new platforms for professional meetings and remote learning (Zoom, Teams, Skype, Google, Facetime, etc.) weighed in
6 A. Pomaro, op.cit., p. 61
7 For several years in the US Google has also been testing Google Duplex: a technology developed through the use of artificial intelligence allowing the computer to hold a full telephone conversation with a human interlocutor, with the ability to perform numerous tasks on the user's behalf by cross-referencing data extracted from Web pages with appointments within the calendar
8 For a detailed definition of GAFAM (Google, Amazon, Facebook, Apple, Microsoft), see the final glossary
9 L. Dormehl, "Today in Apple history: Apple puts 1,000 songs in your pocket with first-gen iPod", in Cult of Mac, 23 October 2021: www.cultofmac.com/660742/today-in-apple-history-appleputs-1000-songs-in-your-pocket-with-first-gen-ipod/
10 For a detailed definition of generations, see the final glossary
11 Amazon Music, among other giants, is using its sister platform Twitch, already focused on live-streaming eSports. LiveXLive recorded a record number of live streams in 2020, when the platform uploaded 125 virtual events with 1,800 performers (there were 300 the previous year)
12 In this regard, we also recall the virtual events (music festivals and concerts) promoted within gaming platforms such as Fortnite (Ariana Grande, Travis Scott) and Minecraft. These are new, in other cases alternative and even original, forms of communication related to showcases or album presentations through increasingly effective and conscious use
13 G. Diegoli, "Audio as the platforms' ultimate weapon", in Link. Ideas for Television, 26 April 2021: https://www.linkideeperlatv.it/laudio-come-arma-finale-delle-piattaforme/
14 Audio-only broadcasts of radio stations are also available on DTT and DTH platforms
15 Live music events are outside the scope of this study

[16] However, it is interesting to point out the unexpected resurgence of the vinyl market that has been going on for a few years

[17] Platforms provide artists/creators with a range of information on user profile and consumption, but this is partial and disconnected data. Lacking, as in video, is a single source tool that embraces the Audio-Sound system as a whole (platforms, Web players, traditional publishers)

[18] For a detailed definition of generations, see the final glossary

[19] Exceptions are those technologies that have now saturated the market, such as smartphones, computers and tablets, and live events, which are also growing

[20] The list refers to national concessions/authorisations issued by the Ministry of Enterprise and Made in Italy (formerly MISE)

[21] Radioplayer Italia is part of Player Editori Radio-PER, a company that groups all Italian national and local radio broadcasters. In 2019 PER signed a licensing agreement with Radioplayer Worldwide, already a partner of 14 national consortia worldwide (Austria, Belgium, Canada, Denmark, Germany, Ireland, Italy, Norway, Spain, Switzerland, England, Netherlands, France, Sweden)

[22] Radioplayer Worldwide has developed an engine for the integration of Hybrid Radio within in-car entertainment systems: this engine can automatically switch between FM, DAB and IP depending on the reception quality in the area, seamlessly for the listener, as well as improve the listening experience through the return channel

[23] Operating as a radio programme provider on terrestrial frequencies in digital technology (DAB+) requires an authorisation issued pursuant to Article 3, paragraphs 8 and 12, of the Authority's Regulation on the start-up phase of terrestrial radio transmissions in digital technology (Annex A of Resolution 664/09/cons)

[24] Ipsos, "Digital Audio Survey", 2020

[25] B. Hammersley, "Audible Revolution", in The Guardian, 12 February 2004: www.theguardian.com/media/2004/feb/12/broadcasting.digitalmedia

[26] On 28 June 2005, Apple released iTunes 4.9

[27] Netflix offers a wide range of various podcast content as spin-offs of its Tv series, such as "You Can't Make This Up" or "The Crown", and behind-the-scenes, such as "Behind the Scenes, Behind the Irishman"

[28] A. Magliaro, "Nella "nuova" normalità in Italia è boom dei podcast", in Ansa, 6 December 2020: https://www.ansa.it/canale_lifestyle/notizie/tempo_libero/2020/11/28/nella-nuova-normalita-in-italia-e-boom-dei-podcast_f023c0f3-7bb8-4b75-ae03-20d9ab6cc636.html

[29] The channels are collections of programmes selected by the podcast authors with ad hoc titles, descriptions and illustrations

[30] Google Podcasts Manager allows users to study the behaviour of listeners minute by minute, establish average listening time, and observe the evolution of engagement one programme after another

[31] In the Digital Audio classification of POLIMI School of Management, "Digital Content Observatory", Web Radio, podcasts and on-demand music streaming are included

[32] This format can also include a clickable element on the device screen, called a companion banner. They can be dynamically inserted into different audio streams and positioned as pre-roll, midroll or post-roll

33 Similar in part to traditional radio quotes, these releases are of irregular duration and are read by the host who often promotes the service/product himself

34 They can be customised to benefit an individual advertiser

35 In this regard, IAB Europe has published several working papers to clarity KPIs (Key Performance Indicators) and measurement of advertising campaigns to different market players. The most essential KPIs are those related to the playback of the ad and are used to determine the number of listens and the Listen Through Rate (LTR), i.e., the percentage of times it was listened to all the way through compared to total plays. See IAB, "Podcast Measurement Guidelines", February 2021 and IAB, "Buyer's Guide to Digital Audio", November 2020

36 Borsa Italiana, "Podcast, Che Business!", 18 June 2019: https://www.borsaitaliana.it/notizie/italian-factory/innovation/podcast.htm

37 In 2021 Netflix hired N'Jeri Eaton, a former Apple executive, to oversee the activities of the new Podcasting Operations department

38 At present, RSS feed technology leaves control of content to individual publishers/podcasters, making it complicated to establish an ethical and regulated advertising network. POLIMI School of Management, "Digital Content Observatory", 2021

39 Veleno, in addition to being transposed into a book, has become a 5-episode Tv series exclusively on Amazon Prime Video (Fremantle Italy production)

40 C. Plazzotta, "Podcasts: manca una misura univoca, le interazioni aiutano a orientarsi", in Italia Oggi, no. 112, 14 May 2021, p. 19

41 Hotly debated topic in the 2021 edition of Radio Days Europe, www.Radiodayseurope.com

42 Edison Research, "Share of Ear", July 2021. See also "How a Global Pandemic changed Audio habits in the US", in Inside Radio, 30 July 2021: http://www.insideradio.com/free/how-a-global-pandemic-changed-audio-habits-in-the-u-s/article_8075df72-f101-11eb-b90a-374f61839c54.html

43 N. L. Pesce, "5 reasons musicians like Bob Dylan, Neil Young and Stevie Nicks are selling their song catalogs right now", in Market Watch, 6 January 2021: https://www.marketwatch.com/story/5-reasons-why-musicians-like-bob-dylan-and-stevie-nicks-are-selling-their-song-catalogs-rightnow-2020-12-15

44 Paid download services are divided into download-to-own (DTO) and download-torrent (DTR)

45 The launch of the iTunes Music Store, along with the spread of the iPod, helped accelerate the process of dematerialising music. Created in 2003, Apple's service introduced the concept of the 99-cent song download

46 In addition to freemium, there is also the pure free model, supported by advertising revenues, in which consumers access all content available within the platform for free, and the paid model, which is divided into pay-per-use through the purchase of a single piece of content (music track/whole album) and subscription upon payment of a monthly or annual fee to use of a catalogue of content

47 In audio, there is no universal standard that identifies high resolution. Compressed formats such as Apple's mp3 and AAC range from about 96 to 320 kbps. The standard in typical CD high fidelity corresponds to 1411 kbps for FLAC, WAV, AIFF (Apple) formats; high resolution goes up to 9216 kbps for MQA (Tidal) and ALAC (Apple) formats

48 Scrobbling is a system of tracking and analysing listening data to generate personalised recommendations, rankings and playlists

49 Tencent Music Entertainment Group is part of the Chinese tech giant Tencent. It operates streaming services and music-related apps such as QQ Music, Kugou, Kuwo, Wesing, and Ultimate Music. Since 2017, Spotify and Tencent have activated a share swap: Spotify holds 8.7 percent of Tencent Music shares, while Tencent Holding has 7.5 percent of Spotify. Tencent also holds stakes in Universal Music Group and Warner Music Group

50 Music streaming service that relies on the Music Genome Project algorithm to search for related (recommended) songs

51 Apple Music 1 focuses on pop culture with in-depth features and artist-led programming. Apple Music Hits, on the other hand, offers a comprehensive catalogue with the biggest hits from the 1980s, 1990s and 2000s. Apple Music Country is dedicated to music of the moment as well as a selection of country classics

52 In the United States, Amazon Prime Music is considered by the Recording Industry Association of America (RIAA) to be a "limited level" service, different from "full" services because it is restricted to Amazon Prime service subscribers only

53 Lossless (HD) formats preserve the details of the original recording and have a bit rate twice as high as standard definition streaming services; Ultra HD (UHD) formats have higher quality (up to 24 bits, 192 kHz) and a bit rate more than 10 times higher than standard definition

54 The YouTube Music service was originally launched in the United States in 2015 as a streaming service with looping music videos

55 Downloading videos and playlists to watch offline is not available on computers and laptops

56 In March 2015, Aspiro, Tidal's founding company, was acquired by Jay-Z's Project Panther Bidco Ltd. which relaunched the service with a massive marketing campaign on social media. The service was promoted as the first artist-run streaming service; in fact, in addition to Jay-Z, there are 15 other musicians who are co-owners and stakeholders of the service

57 According to the principle of "the more you listen, the more accurate the proposed suggestions will be"

58 Phenomenon described as "two-sided marketplace"

59 Spotify has created more than 4 billion playlists globally available within the platform

60 In 2013 Spotify launched Spotify Connect, a feature that allows users to move their service (and listen to content) from one device to another (smartphone to PC, game console, smart Tv)

61 The production of original audiobooks as well as the introduction of live chats with the launch of Greenroom should also be read in this direction

62 D. Ek, "Audio-First", in Newsroom Spotify, 6 February 2019: www.newsroom.spotify.com/2019-02-06/audio-first/

63 The software used by Spotify is proprietary and uses Digital Rights Management (DRM) to protect media content. What makes the service possible are agreements made with various record companies and independent labels in order to be able to make their music freely usable (upon payment of royalties)

64 Types of offerings that employ the same inputs and are substantiated by different and differentiated services that belong to distinct but related markets with overlapping user bases. AGCOM, "Observatory on Online Platforms", 2019. See also T. Eisenmann – G. Parker – M.

Van Alstyne, "Platform Envelopment", in Strategic Management Journal, no. 32, 2011

[65] Spotify AB was founded in 2006 by Daniel Ek and Martin Lorentzon. The launch of the service was preceded by a trial period in which a selection of users got to work with the company, evaluating the value proposition of the platform

[66] FIMI, "Global Music Report", 2021

[67] GWI (Global Web Index), "The Global Media Landscape", 2021

[68] YouGov, "International Media Consumption Report 2021. Is there a new normal?", 24 February 2021, p. 86

[69] PwC, "Global Entertainment & Media Outlook 2021-2025", 2021

[70] MTM, "Media Technology Monitor Spring 2021", 2021

[71] OBE (Branded Entertainment Observatory), "Whitepaper Branded Podcast", 2021

[72] YouGov, "International Media Consumption Report 2021"

[73] Newsroom Spotify, "6 Questions (and Answers) with Michael Krause, Managing Director, Spotify Central Europe", 26 September 2019: https://newsroom.spotify.com/2019-09-26/6-questionsand-answers-with-michael-krause-managing-director-spotify-central-europe/

[74] N. Jarvey, "Spotify Tests Audiobooks with Frankenstein, Jane Eyre and Other Literary Classics (Exclusive)", in The Hollywood Reporter, 25 January 2021: https://www.hollywoodreporter.com/business/digital/spotify-tests-audiobooks-with-frankenstein-jane-eyre-and-other-literary-classics-exclusive-4121062/

[75] For a detailed definition of generations, see the final glossary

[76] M. Williams, "2020 was BookBeat's most successful year. Revenue up 63%. Subscribers up 65%", in The New Publishing Standard, 16 February 2021: https://thenewpublishingstandard.com/2021/02/16/2020-was-bookbeats-most-successful-year-revenue-up-63-subscribersup-65/

[77] Id., "Nextory's new $20 million cash injection shows subscription reading is as attractive to investors as to consumers. US and UK publishers look the other way", in The New Publishing Standard, 16 November 2020. See also P. Anderson, "Audiobook Subscriptions: Audible and Podimo Join Storytel in Spain", in Publishing Perspectives, 21 September 2020: https://publishingperspectives.com/2020/09/audible-and-podimo-join-storytel-in-unlimited-streaming-in-spain-covid19/

[78] Adobe Analytics, weekly average from 28 December 2020 to 20 June 2021, app only

[79] Bookwire, "Listen & Read. The Battle for Attention", 15 October 2020, p. 16

[80] Although available for download in multiple territories, both team-working and intimate audio-imposed socials are available only in English

[81] N. Patel, "Twitter is reinventing itself", in The Verge, 9 March 2021

[82] Trapica Content Team, "Social Podcasting App Breaker is to be Acquired by Twitter", in Trapica, 8 March 2021: https://medium.com/trapica/social-podcasting-app-breaker-is-to-be-acquiredby-twitter-fa139f8b665a

[83] IHS Markit, "2020 Annual Report", 2020

[84] Starting in 2019, you can use Siri with AirPods (Apple) to ask questions and accomplish tasks

[85] Microsoft Market Intelligence, "Voice Report 2019", April 2019

[86] Audience Service, "How can I use Siri to play CBC?", in CBC Help Centre, 2019: https://

cbchelp.cbc.ca/hc/en-ca/articles/360047507694-How-can-I-use-Siri-to-play-cbc-

87 Google, Google News Initiative. Partnerships, https://newsinitiative.withgoogle.com/info/partnerships

88 Elaboration by CRTV (Confindustria Radio Tv) on data from POLIMI School of Management, “Internet of Things Observatory”, 2021 and GWI

89 TIM Research Office, “Smart Home Report. Internet of Things in Italian homes”, 2021

90 EBU Media Intelligence Service (MIS), “Digital Media Consumption Trends”, July 2021, page 23

91 Signal Hill Insights, “Radio on the move”, 2021

92 Ford itself, moreover, has entered an interesting collaboration with the University of Michigan aimed at investigating the study and development of robots and autonomous systems, with a view to future implementations of additional smart functions in its vehicles. See J. Szczesny, “Ford to Embed Robotics Researchers at University of Michigan”, in Wardsauto, 22 March 2021: https://www.wardsauto.com/industry-news/ford-embed-robotics-researchers-university-michigan

93 Currently available only for the US market

94 POLIMI School of Management, “Connected Car & Mobility Observatory”, May 2021

95 F. Siddiqui, “Connected Car Shipments for Europe Hit the Expressway”, in Counterpoint, 20 November 2020: https://www.counterpointresearch.com/connected-car-shipments-for-europe-hit-expressway/

96 Edison Research, “The Smart Auto Report”, April 2020

97 Wunderman Thompson, “The Future 100: 2021”, p. 9-10, 10 January 2021: https://www.wundermanthompson.com/insight/the-future-100-2021

98 Europe’s Video Games Industry (ISFE), “Poland is first government worldwide to add video games to official school reading list as educational resource”, 23 June 2020: https://www.isfe.eu/news/poland-is-first-government-worldwide-to-add-video-games-to-official-school-reading-list-as-educational-resource/

99 C. De Bont, “New toolbox shows teachers how to best use games in their classroom”, in Flega.be, 18 November 2020: https://www.flega.be/new-toolbox-shows-teachers-how-to-best-use-games-in-their-classroom/

100 Forbes Staff, “Marshmello ha fatto un concerto su Fortnite. E potrebbe essere solo il primo”, in Forbes, 15 February 2019: https://forbes.it/2019/02/15/successo-concerto-marshmello-su-fortnite/

101 D. Barbera, “12 milioni di persone hanno seguito il concerto virtuale di Travis Scott su Fortnite”, in Wired, 24 April 2020, https://www.wired.it/gadget/videogiochi/2020/04/24/concerto-travis-scott-fortnite/

102 C. Abidin, “Mapping Internet Celebrity on TikTok: Exploring Attention Economies and Visibility Labours”, in Cultural Science Journal, 2021

103 M. Stassen, “Tiktok says over 70 artists that broke on the platform this year have signed major label deals”, in Music Business Worldwide, 16 December 2020: https://www.musicbusinessworldwide.com/tiktok-says-over-70-artists-that-broke-on-the-platform-this-year-have-signed-major-label-deals/

104 Ibid

105 C. Abidin, op.cit

106 B. Allyn, "TikTok Sensation: Meet The Idaho Potato Worker Who Sent Fleetwood Mac Sales Soaring", in "NPR", 11 October 2020: https://www.npr.org/2020/10/11/922554253/tiktok-sensation-meet-the-idaho-potato-worker-who-sent-fleetwood-mac-sales-soari?t=1621255113311?t=1621255113311

107 P. Yeung, "TikTok is Altering the Music Industry", in FFWD, 30 July 2019: https://ffwd.medium.com/tiktok-is-changing-the-music-industry-bc19a8468b61

108 J. Oettle, "Will you find your next #1 Hit via Instagram? How the app's new feature 'Clips' could make TikTok obsolete", in Masters of Media, September 2019: https://mastersofmedia.hum.uva.nl/blog/2019/09/23/will-you-find-your-next-1-hit-via-instagram-how-the-apps-new-feature-clips-could-make-tiktok-obsolete/

109 D. Kopf, "The economics of streaming is making songs shorter", in Quartz, 19 January 2019: https://qz.com/1519823/is-spotify-making-songs-shorter

110 F. Zaffarano, "TikTok without generational prejudice", in The Nieman Lab, December 2019: www.niemanlab.org/2019/12/tiktok-without-generational-prejudice/

111 J. Vázquez-Herrero - M. C. Negreira-Rey - X. López-García, "Let's Dance The News. How the news media are adapting to the logic of TikTok", in Journalism, 30 October 2020, pp. 1-19

112 L. Beckenbauer, "On platform aesthetics: TikTok as the next level of the gamification of social exchange online", in Masters of Media, 23 September 2019: http://mastersofmedia.hum.uva.nl/blog/2019/09/23/on-platform-aesthetics-tiktok-as-the-next-level-of-the-gamification-of-social-exchange-online/

113 J. Vázquez-Herrero - M. C. Negreira-Rey - X. López-García, op.cit., p. 14

114 M. Trabucchi, "Doppiatori addio. L'attore originale parla lingue diverse grazie all'A.I.", in Il Sole 24 ore, 22 February 2021

115 F. Kalim, "Amazon Polly's neural text-to-speech allows publishers to turn articles into realistic audio", in What's New in Publishing, 6 August 2019: https://whatsnewinpublishing.com/amazons-text-to-speech-service-polly-can-now-produce-realistic-human-narration-that-is-miles-ahead-of-anything-weve-heard-to-date/

116 For a more detailed description of Polly customers see also: https://aws.amazon.com/it/polly/customers/

Chapter 2

Public Service Radio in Europe: Today, Yesterday, Tomorrow

BY DAVID FERNÁNDEZ QUIJADA

This chapter analyses in detail the complex development of European Public Service along a timeline marked by three key moments: the decade 2010-2020, the COVID-19 pandemic and the exit from the pandemic.

2.1. Sustainability and plausible futures for Public Radio

One of the main lessons we should extract from the COVID-19 pandemic is that, despite its admirable rapid response, Public Radio – and media in general – were unprepared for an event far from business-as-usual.

This poses concerns about the preparedness of Public Radio for what may lie ahead and, thus, how to ensure its sustainability. Public radio should react and start looking not just at its probable future but also at plausible and possible futures. This may require looking at the future in a more systematic, structured and consistent way. Being pro-active means building the future, not fearing it.

What to do?

While radio may be struggling to keep its audiences, audio consumption may not necessarily be in decline but may be getting refreshed with new audiences. Audio is becoming more sophisticated, with an increasingly complex distribution. For audiences, however, audio is about the content, not so much about the delivery method or the device used to access it.

Audiences value availability and convenience and their choice may be driven by prominence in the device that they are using. However, once the content is found, they will only listen – or continue listening – based on the value they receive. So Public Radio should focus on content.

While it would be ideal to have a direct relationship with audiences and avoid intermediaries, high quality content is in demand so it will find its way to audiences, directly or through third-party platforms, which are now well-established players in the audio ecosystem. They will not disappear but rather will increase in number and power. So, the best way to ensure wide distribution and prominence on these platforms is an attractive content.

Making content attractive involves art, data, experience, and gut feeling in different proportions. The huge competition for audiences' attention in this era of audio abundance makes it necessary for Public Radio to rethink, even from scratch, what content it should be offering. Assumptions should be challenged, and nothing taken for granted. The heavy legacy of many Public Radio organisations should not be a brake for innovation: what contents and services would a new-born Public Service audio organisation be offering? What should Public Radio stop doing?

Here is where the uniqueness of Public Radio is an asset. This does not mean that every single piece of audio it distributes should be unique, but its overall offering should sound unique, with content that audiences clearly associate with Public Radio due to its character, its quality, its boldness, its service-orientation, its values, etc.

Uniqueness drives Public Radio to value in a natural way. Value means delivering something that audiences appreciate and perceive as a benefit for their enrichment, their knowledge, their understanding of the world, their mood, their levels of stress, etc. Focusing on value may help Public Radio understand audiences in a different, richer and more meaningful way. Eventually, targeting audiences by these parameters and not by demographics – which streaming may be able to do better via algorithms – may result in more profound understanding of those audiences and their needs.

How to do it?

It is not just about things that Public Radio should or should not be doing but also about how Public Radio should be doing those things. Radio is in transition as an industry and faces the challenge of a transformation to become more digital, not just in its output but especially in the way it works.

To start with, Public Radio needs to upscale the skillsets of employees to face the challenges ahead. We have seen in this report how quickly things have changed in the radio industry in the last decade and, despite all the changes Public Radio has gone through, the general impression is that it is still lagging.

Skillsets, or how to do things technically, goes hand in hand with changing mindsets, which is about attitude. A new mindset is needed to look at audiences in new ways, to boost innovation, to challenge assumptions, to take risks, to deliver more value.

Beyond the right technique and the right attitude, the complexity of the audio market, which is likely to increase in the short term, means that Public Radios may not be able to succeed on their own. A Public Service media organisation adapted to current market conditions and future-proofed may mean a networked public media: an organisation that is the central node of a network with multiple industry players – freelance creators, independent producers, start-ups, tech companies, etc. – and socially-relevant players – cultural institutions, official bodies, international organisations, NGOs, etc.

This collaborative role could be expanded to lead the industry in terms of content distribution, technical development, audience measurement, and advocacy, to name a few. Leading means being pro-active and proposing solutions, not just reacting to what others are doing or, even worse, remaining paralyzed.

Finally, to understand how it is doing, Public Radio should embrace impact measurement to measure its value. This approach is set to play a more central role in understanding the performance of PSM in the future.

Here, though, the current focus is still quite short-term: public broadcasters still ask mostly about the impact of their recent content on people. However, we know that the effects of some content may not be immediate but rather build up over time. While a specific show may generate awareness on an important topic – and this is already a type of impact – it may need more time and/or additional inputs to generate some specific action on the audience side, which may be classified as an additional and richer type of impact.

The final takeaway is about reassurance. Public radio may feel under threat and challenges ahead are not minor, but the heavy legacy that is often felt as an obstacle may also be an asset: solid brands, good reputation, experienced and well-respected talent, appreciated content, etc. The glass may not be half empty but half full.

The decade of the 2010s brought a huge level of disruption to the radio industry. In the last decade, a quiet and conservative industry such as radio faced an accelerated level of change and innovation, unprecedented in its first century of history.

This has shaken many of the foundations of the industry, bringing a permanent state of adaptation and transformation in search of the right formula to compete in a crowded marketplace whose borders are increasingly blurring.

Of course, Public Service radio has not been immune to this situation and has participated in this metamorphosis at a very different pace, depending on the markets. In some cases, it has driven innovation and led transformation; in others, it has lagged and let commercial broadcasters and online pure players take the initiative.

There is certainly not a unique Public Service radio across Europe nowadays, although certain aspects of their competitiveness, or lack thereof, are intrinsically linked to their Public Service nature, their remit, their funding models and their historical legacy. Through the next sections, we will illustrate this story of continuity and change during the decade of the 2010s.

2.2. A decade of public broadcasting in Europe 2010-2020

For Public Service radio, this disruption did not arrive at the best moment, if there was ever a good moment for disruption. As will be seen in this section, while outputs from Public Radio continued to evolve while keeping its Public Service ethos, inputs in the form of available revenues did not grow at the pace that would have been desirable, prompting efficiencies in production and distribution but also missed opportunities. These lost opportunities derive from the untapped potential that could have been triggered by additional funding in organisations typically in a leading or at least in a very relevant position in their market and, as such, with the capacity to drive the industry in new directions.

2.2.1. Production: more, not always better

In the last decade, there has been a natural trend to expand radio services, both for public and commercial broadcasters, even in mature markets. This has been driven mostly by the launch of digital terrestrial services, which allow a more efficient use of the spectrum and thus a multiplication of services with no parallel increase in distribution costs. Of course, the production of those new channels has a cost but, in many cases, these have been low-cost services or funded by efficiencies in other areas.

However, the increase in offerings did not come exclusively from digital channels but also new channels were launched in analogue. Up to 25 channels from public broadcasters were launched only for analogue distribution during the decade. Interestingly, most of them were regional channels, showing that this was more a way to add capillarity to the network than to bring new value propositions to the market, as was the case for digital broadcasting. The result was the 2,097 Public Radio stations broadcasting in Europe by 2021.[1]

Public service radio offerings across Europe tend to have some common traits: a general interest flagship channel, a classical music channel and a youth station are a common denominator. There are exceptions, of course, with no dedicated classical music service in Austria, Finland, or Slovakia, and no youth station in Croatia, Greece, or Slovenia, just to name a few. This does not mean that these countries ignore classical music or do not produce dedicated content for youth, but they do not have a dedicated channel.

To this basic package, a few additions could be identified. News is a good example of additive channels and value. At the end of the decade, there were 22 all-news radio channels, 8 of them in Germany but also in Belgium, the Czech Republic, France, Hungary, Israel, Netherlands, Norway, Poland, Russia, Switzerland, and Spain. Again, news is at the core of all PSM, but this just means a dedicated service exists. In fact, the greatest volume of news production is found in countries such as Bulgaria, Croatia, Finland, Sweden, and the United Kingdom, mostly due to its extensive regional footprint, whose output is mostly focused on news.

Public service at heart

If we look at those linear services in terms of genres offered, music is the clear winner with 47% in 2020. Music was followed by news & current affairs (19%), regional and local (13%), arts, culture, education and science (9%), and entertainment (5%). This picture has remained stable during the decade, showing that the genre mix might already be adequate and focusing innovation on the format side. However, a closer look at the PSM offer in digital stations reveals that there is a long tail of genres in digital that includes some stations offering cultural & educational services, sports, and children's content and others targeting minority interest groups.

Children are a good example, as there was not a single radio service devoted to them in analogue beyond dedicated shows in generalist stations. However, at least 10 new digital public stations for children have been created: ČRO Rádio Junior in the Czech Republic, MDR Tweens in Germany, RTÉ Junior in Ireland (which recently became an Internet stream following their DAB+ switch off), Rai Radio Kids and RAS Die Maus in Italy, NRK Super in Norway, Radio Dzieciom in Poland, Radio Junior in Slovakia, and Barn SR and SR Knattekanalen in Sweden.

Other interesting and successful new genres have evolved from the traditional full-service format to re-focus on senior audiences. This has been a success story in the last years, with those stations leading the digital rankings in markets such as Norway (NRK P1+), Denmark (DR P5) and the German-speaking part of Switzerland (SRF Musikwelle). As can be seen, the expansion of possibilities for linear radio brought an expansion of the audiences served.

A similar but less widespread story is that of dedicated sports radio stations. Five of them are currently produced by public broadcasters across Europe in the Czech Republic, Greece, Italy, Slovenia, and the United Kingdom, but only the Greek station ERA Sport broadcasts in analogue.

The expansion of the offer with the addition of these new services was mostly done keeping efficiency in mind, from totally automated stations (Radio Swiss Pop, Radio Swiss Jazz and Radio Swiss Classic in Switzerland) to stations based on archives (ČRO Rádio Retro in the Czech Republic and Rai Radio Techeté).

However, the unifying element that linked all those services was their Public Service nature: a willingness to serve the citizen with a differentiated value proposition.

Some authors[2] illustrate the distinctiveness of public media as drivers of digital radio and technological innovation by looking at the number of services and the diversity of genres provided by the same broadcaster on analogue-only, simulcast and digital-only stations. In the digital space, Public Service radio was not only outperforming commercial radio but was also showing its skills and resources to diversify its portfolio to serve audiences more and better. In a media landscape defined by fragmentation of audiences, their universality mission cannot be reached anymore by having a generalist service with different programmes for different social groups but is defined by the capacity to reach everybody with Public Service content of their interest, in multiple forms and through different means.

Distinctiveness is a topic that seems naturally linked to Public Service media. However, it is still quite problematic for scholars[3] and has not gained relevant traction among PSM beyond the continuous insistence of British politicians on the BBC to be distinctive. The measurement of distinctiveness by diversity of output and genres may be too reductionist, not to mention how problematic it may become in an increasingly hybridized format offer, with the additional risk of designating some 'Public Service genres' at the expense of some genres such as entertainment that help to provide a balanced offer for listeners and deliver public value.

This idea of distinctiveness is closely linked to the recent emergence of other interests in public media that are inherently Public Service, such as diversity and inclusion,[4] social cohesion,[5] and territorial cohesion.[6]

Searching for Public Service niches dynamically

As seen, audiences are better served in digital, but the possibilities can grow *ad infinitum* when unbundling audio content from a linear schedule that only feeds a linear station. On-demand pieces of content, however, can be generated without limits. The combination of individual audio pieces creates a collage that can eventually generate a personalised audio stream. If this is based on an algorithm that considers Public Service elements – such as developed recently by Swedish Radio – then every single listener could potentially be served a unique audio experience. German public broadcaster SWR put a focus on youth to deliver that personalised experience through its apps.[7]

The creation of these Public Service niches may generate a higher individual value that may work well with increasingly individualistic citizens – a trend Public Service radio cannot ignore – but there is also the risk of losing the shared value generated by those moments that bring the nation together and that are still necessary for any society. Probably, these goals are not mutually exclusive and can be combined. However, we are just at the beginning of the exploration of these algorithms and more practice and research are needed to understand their consequences.

Distribution: it's complicated

If content is said to be king, distribution is certainly queen. Or even distribution may be becoming king, as the rise of convenience and algorithm selection point to certain content commoditisation, with dilution of content creators' brands in favour of distribution platforms and content increasingly interchangeable. Although companies with well-positioned brands such as public broadcasters may be in a safer position, they are nevertheless exposed to risks if they lose the direct contact with listeners and start depending on third parties and their conditions to access their audiences.

This is a glimpse into the future that might be coming. Online consumption was possible at the beginning of the 2010s but interfaces were not friendly, applications not so abundant and mobile phones not so widespread, not to mention that devices such as smart speakers were not even on the horizon and the podcast was still an amateurish thing. Ten years later, in 2020, Public Radios such as NRK in Norway, Swedish Radio, Latvijas Radio in Latvia and LRT in Lithuania release a large amount of content online first and only later make it available in broadcast form. Others, including RTÉ in Ireland, VRT in Belgium, Yle in Finland, NPO in the Netherlands and SRF in Switzerland, have a broad offering of exclusive online content, which cannot be consumed through broadcasting.[8]

However, distribution is many things – and growing – and has many footnotes, especially for Public Radio, so it is worth analysing the wider picture.

Long life to broadcasting

Broadcasting is a very efficient way to distribute audio content to the population. Depending on the band, a single transmitter could offer service to millions of people in densely populated areas. Depending on the orography, the signal from a transmitter could be heard from hundreds of kilometres away – and thousands in the case of short wave, used for international services. In this regard, it is a very valuable economic proposition for broadcasters, who have a clear understanding of the quality of its signal, its reach, and its distribution costs.

All these factors are less certain with online distribution, although the increasing number of devices that allow people to access all kinds of online services makes online distribution very convenient for them. And convenience is one characteristic that has gained prominence in the radio market in the decade of the 2010s, switching the focus to the listener's user experience. This is a long-term trend that will become more acute in the next years, driving the adoption of digital devices and online consumption.

Good old analogue broadcasting

Broadcasting via frequency modulation (FM) is the most widespread distribution means for radio, with 95% of services in Europe using it.[9] It has been there for decades although it only became the main reception mode around the 1980s, when its sound quality and larger offering made obvious its superior value proposition compared to medium wave (MW).

Nowadays, the only exception to widespread FM distribution is Norway, where FM was shut down for nationwide services and for most local services in 2017, with Switzerland following suit by the end of 2024. For the remaining public – and commercial – broadcasters, FM still represents their main means to reach audiences, and there is no other FM switch off on the horizon for the time being.

As of April 2021, there were 1,964 Public Radio channels broadcasting in FM across Europe (Figure 8), although that figure was extremely inflated due to the more than thousand municipal radio stations in Spain.[10]

While prospects for FM are still healthy in the near future, cloudy times are ahead for radio in other analogue bands, namely medium wave and long wave (LW).

As of April 2021, public broadcasters in 25 European countries were still broadcasting 87 medium wave signals to reach their audiences, a reduction of 18.5% in just 4 years. Still, those services represented 50.5% of all MW services available in Europe.[11]

Despite this greater commitment to MW, the clear trend among public broadcasters is to reduce or even shut down medium wave distribution: Radio France, NPO in the Netherlands and Deutschlandradio did so in 2015. They were followed by BTRC in Belarus and Radio Vaticana in 2016, RTSH in Albania in 2017 and RTBF in Belgium in 2018. The BBC switched off some medium wave transmitters broadcasting its local services starting in January 2018, in a process that is still ongoing (Clifton, 2021) and will reduce significantly the 30 MW services that were the bulk of those 87 offered by PSM across the continent. Czech Radio switched off MW completely by the end of 2021.[12]

PUBLIC SERVICE RADIO SERVICES IN FM ACROSS EUROPE (2021)

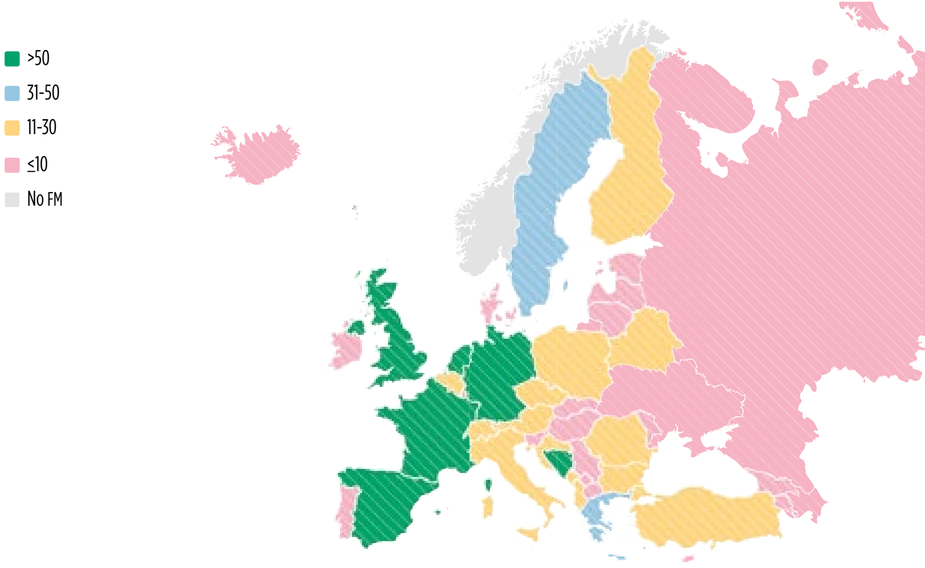


Figure 8 – Number of public stations in FM – Source: EBU Media Intelligence Service.

The case for MW shutdown seems clear to many broadcasters but in most countries lacks consistent understanding of who benefits from those services and how to avoid alienating them from radio. A good case is Spain, where there are still two MW services from public broadcaster RTVE – and 7 from commercial broadcasters. According to their currency data, weekly reach of MW stood at 1.6% in 2020, down from 41.6% in 1980, 17.8% in 1990, 10.7% in 2000, and 3.5% in 2010 (AIMC, 2021). As can be seen, it is not a matter of 'if' but of 'when it will happen'.

Medium wave is not the only band that is approaching its sunset. In fact, long wave is even closer to disappearance. As of April 2021, only 7 public organisations were broadcasting in long wave. Six of them were broadcasting just one service, usually through their flagship stations (the Czech Republic, Ireland, Poland and the United Kingdom) but also through their international service (Denmark) and a station targeting rural communities (Antena Satelor, Romania). Iceland was broadcasting its two services Rás 1 and Rás 2, given the good coverage offered for a large, scarcely populated country.

Czech Radio shut down its LW service at the end of 2021,[13] while RTÉ in Ireland has been trying to close its long wave RTÉ Radio 1 Extra service for a few years. Aimed at Irish expatriates living in the UK, most of whom are pensioners, its closure was announced for 2014 but later postponed twice: first to 2017 and then to 2019. The reason was protests from its target audience, even though the same services are available online. Among this group, however, Internet is not so popular. This is a good example of the backlash that Public Service media organisations can face when trying to find a compromise between the universality required of them and the need to use resources efficiently, and of how dialogue with stakeholders is needed.

The slow transition to digital broadcasting

At the beginning of the decade, digital terrestrial broadcasting across Europe was still in a very early stage, with just 8 countries offering regular services (Denmark, Malta, Norway, Spain, Sweden, Switzerland, the United Kingdom and the Vatican) and a few additional trials, some of which shut down between 2010 and 2012 (Croatia, Estonia, Lithuania and Portugal). Devices with DAB tuners were still difficult to find in stores except in the UK, and citizens were mostly unaware of this new way to listen to radio. Except for Malta and Spain, the roll-out was being led by public broadcasters; in some cases, such as the UK, in close collaboration with commercial broadcasters.

However, the list of countries starting trials and later regular DAB+ services grew with the decade: Czech Republic, Germany (2011), Italy (2012), Netherlands, Poland (2013), France, Monaco (2014), Austria, Belgium (2015), Slovenia (2016), Croatia, Greece (2017), Serbia, Ukraine (2018) and Azerbaijan (2019). As a result, Europe had a widespread albeit uneven development of DAB and DAB+ transmissions. Additionally, many countries switched from DAB to DAB+. In some cases (Czech Republic, Germany, Poland, France, Belgium and Serbia), those services were led by public broadcasters, while in Italy and Austria, public broadcasters were behind commercial broadcasters – and still is the case in Austria, where ORF does not broadcast digitally.

As a result, as of April 2021 there were 423 Public Radio stations broadcasting digitally through DAB+ (mostly) and DAB, including 116 services not available in analogue. These figures represent 22% of all digital terrestrial services, including 19% of exclusive stations.[14]

The leadership of public broadcasters has been critical for the success of digital broadcasting in the most advanced markets. Norway shut down nationwide FM services in 2017 to rely exclusively on DAB+ as its main broadcasting infrastructure, with public broadcaster NRK leading the way, most notably by switching off its FM signal months earlier than commercial broadcasters. This model is expected to be reproduced in Switzerland, with stations from Public Radio SRG SSR taking the lead and switching off FM earlier than its commercial counterparts.

These two cases illustrate the role public broadcasters can play in favour of the whole market, assuming risks that would be unthinkable for commercial organisations that cannot risk their advertising revenue. This is a position in which broadcasters such as NRK, SRG SSR but also the BBC, DR in Denmark, Czech Radio, and RTBF and VRT in Belgium have felt quite comfortable, as it is an acceptable approach that clearly shows the value that they bring to the whole market, not just to audiences, an argument used more and more often by regulators and policymakers.

Developing an online identity

Radio is no longer just the broadcast of radio signals. Those signals can now be distributed online and, even with a higher potential, audio content has expanded to exclusive on-demand audio content. In fact, the decade of the 2010s meant an enormous development of online audio, as reflected in the first chapter of this report.

For Public Radio, the strategic decision is where to find the balance between attending to the bulk of the audience remaining in linear radio, mostly broadcasting, and serving the audiences mostly or exclusively consuming online services, including on-demand. Should resources continue serving the bulk of the audience in a network that is in decline or should they be shifted towards new online services, a growing segment for the moment serving a smaller number of listeners? Interestingly, those listeners belong mostly to hard-to-reach targets, such as youngsters.

The answer from PSM has been diverse. And here diversity should be understood at two fundamental levels: developing an online offerings that may put digital as its first option, as explained previously, but also developing their own platforms. While all public broadcasters have made their content available online, not all of them have developed a dedicated platform.

When a dedicated platform exists, there are two basic approaches: a hybrid or a dedicated audio platform. In the first case, PSM create a unique platform for all Public Service media content, independently of the format and its audio or video nature. This is the approach chosen by RTBF in Belgium with Auvio, Yle in Finland with Yle Areena or RTP in Portugal with RTP Play. In the second case, broadcasters dedicate the service exclusively to audio, developing features specific to audio. Examples include BBC Sounds in the UK, ARD Audiothek in Germany or the dedicated audio players offered by many PSM. While the first approach builds on the strength of the brand and the idea of creating something bigger to attract audiences, the second privileges the sonic nature of the product and makes audio content more prominent by highlighting it and avoiding video content that hides it.

If the latter is to be privileged, the case of BBC Sounds is quite remarkable. Launched in 2018, it was the first time that a public broadcaster brought together linear radio, podcasts, and music under the same platform. For all of them, it launched an extensive range of exclusive services, with the ambition to compete with music streaming platforms that are just now moving in the opposite direction: from the original music offering to podcasts and eventually linear radio. As Spotify's founder Daniel Ek clearly stated, the Swedish music streaming platform is eager to eat into radio's pie.[15]

The toll of intermediaries and aggregators

The idea of platforms does not stop here. Alexa, TuneIn, Spotify, SoundCloud, Deezer, Radioplayer, etc.: all these are interfaces that many listeners use to access the content produced by Public Service radio. This is certainly an illustration of the new dynamics imposed by accelerated innovation and adoption of a more digital lifestyle by listeners, notably young audiences.

Being present on these platforms allows PSM to reach some audiences that would be unlikely to listen to their content on PSM platforms. However, it also creates a powerful intermediary between Public Radio and its audiences. So powerful that often it determines what, where and how Public Radio content appears on these platforms, thus creating some concerns for PSM, which lose certain control over their content and, especially, over the context in which their content is displayed.

The EBU has identified up to ten different elements that are at stake in the relationships between PSM and tech aggregators given that those third-party platforms are increasingly playing a gatekeeper role between broadcasters' content and listeners (Figure 9). This raises many serious concerns for broadcasters:

- Access to users' consumption data on third-party platforms so that broadcasters are kept aware of how their content is being consumed.
- Transparency on rankings and algorithms, which means assigning priority to the original source for the same content.
- Prominence of public value content.
- Content attribution and branding; making clear the role of PSM and avoiding any doubt on the user's side about who created the content.
- Preferential treatment: platforms giving advantage to their own products/services or in return for payment.
- Editorial control, to avoid abuse and censorship by the platform.
- Misinformation, to avoid re-use of PSM content by fake accounts.
- Content integrity, to avoid overlays without clear consent, for instance by adding advertising.
- Unequal bargaining power, resulting in terms and conditions imposed by platforms on PSM.
- Accountability, so that platforms can no longer hide behind limited liability.

OVERVIEW OF KEY ISSUES AT STAKE BETWEEN PSM AND THIRD-PARTY PLATFORMS

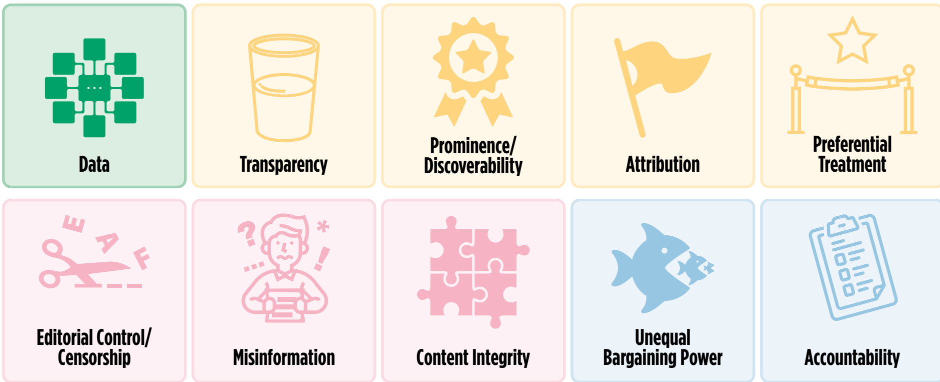


Figure 9 – Main issues between PSM and third-party platforms – Source: EBU Legal & Policy

The case of Radioplayer – and RadioT in Finland – might be different, as it is an aggregator that brings broadcasters together to manage their own platform. In that regard, it's nothing different from the analogue era: basically a kind of digital tuner. It is a platform from broadcasters – Radioplayer is owned by the BBC and UK commercial group Bauer and Global – for broadcasters, and as such keeps the interest of legacy radio players at the front.

The importance of the battle with third-party platforms, unthinkable 10 years ago, is illustrated by two cases, Radio France and the BBC. Radio France has traditionally been a broadcaster quite reluctant to share its content on third-party platforms, often against the usual practice among other French broadcasters and among European PSM. This position was confirmed and reinforced in its current digital strategy, published in late 2020. For aggregators, it reinforces its strategic bet on its own apps and creates a windowing system through which those platforms have limited access to Radio France's output, in terms of time periods and content, some of which is only available in Radio France's own platforms. This strategy is based on four principles:

- The need for a contract, which gives editorial control to Radio France.
- Editorial integrity: content cannot be modified.
- Remuneration: if content is used for commercial exploitation, payment is required.
- Data usage to be shared with Radio France.[16]

Clearly, this strategy is based on the BBC Distribution Policy (BBC, 2018), which generated controversy among users when the BBC blocked the access of Google bots to BBC RSS feeds to index and retrieve its podcasts on the Google Podcast App and on Google Assistant.[17] This is a sharp illustration of how even one of the biggest and certainly the most well-known PSM in the world already struggles to stand up to one of the biggest tech giants in the world.

Belgian Public Radio RTBF could be added to these two cases given its long-running dispute with TuneIn, the American aggregator that offers its own service but also feeds many smart speakers.[18]

2.2.2. Consumption: the good old days are gone

Public broadcasters have traditionally reached high audience ratings. As the legacy companies of public monopolies,[19] they had a privileged position, with access to some of the best frequencies in the radio spectrum, and a tradition and know-how of programmes and anchors already familiar to audiences. As a result, their flagship stations are often leaders in their markets (Figure 10). However, competition has constantly grown during the 2010s and more is coming. This may require rethinking the priorities in terms of metrics, such as reaching audiences at Public Radio level and not just at channel level.

RANKING OF MAIN PUBLIC SERVICE RADIO STATION IN EUROPE (2019)

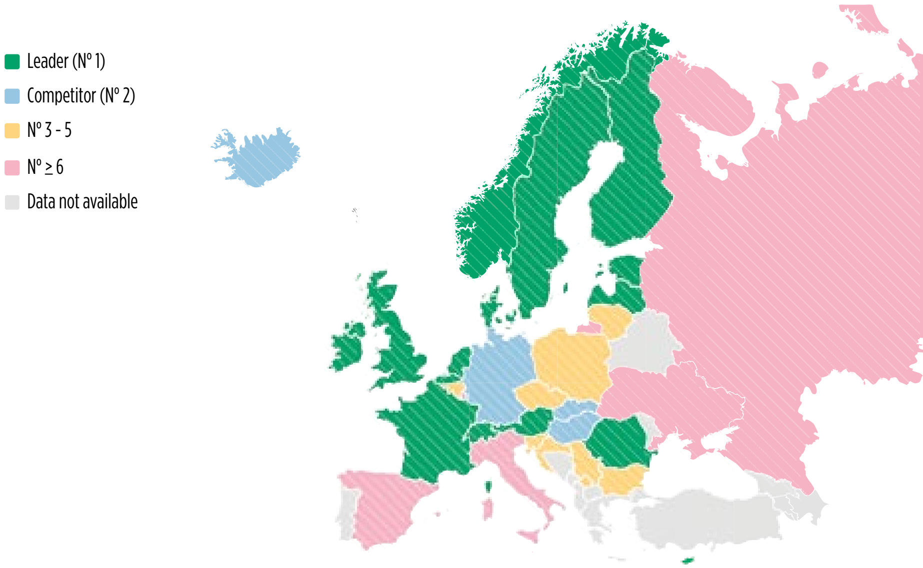


Figure 10 – Source: EBU-Media Intelligence Service

The unavoidable competition for attention and impact

Reach, typically measured in terms of daily and weekly reach, is a rich measure that basically indicates how many people had a minimum contact – typically 15 minutes consecutive – with a programme, a station or an organisation during a given period. Therefore, this measure has traditionally been used by public broadcasters, as it seems an excellent proxy for the universality goal enshrined in their Public Service remit.

However, looking at the evolution of reach during the 2010s does not bring satisfactory results. Between 2013 and 2019, reach of Public Radio across Europe decreased from 49.7% to 44.3% on average (Figure 11).

PUBLIC SERVICE RADIO WEEKLY REACH

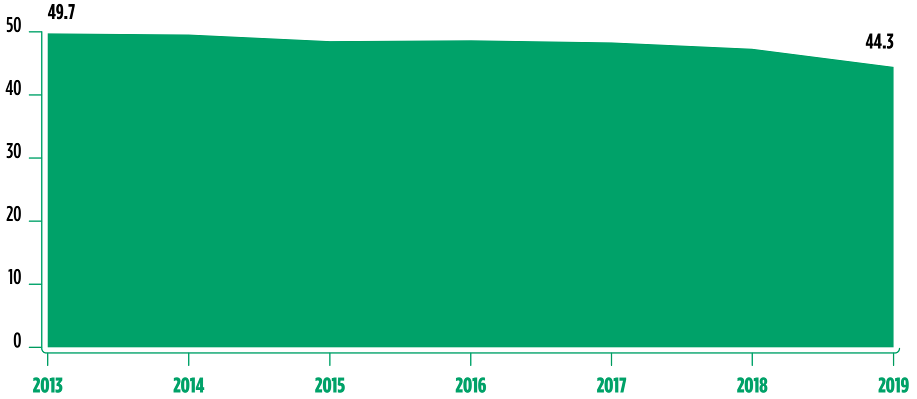


Figure 11 – Measurement period: 2013-2019, all individuals, in %. Note: based on 15 organisations with complete data for the period 2013-2019 – Source: EBU Media Intelligence Service.

The decrease in reach is a long-term trend that does not only affect public broadcasters but the radio industry as a whole and is likely to continue in the coming years. There is a part of new modalities of consumption that is not being captured by traditional radio measurement (as discussed later in this chapter), but the results also point to an obvious need to renew the value proposition for radio to become more attractive to audiences in a time of extreme competition for their limited attention.

As currently measured, reach only explains part of the story: how many people were exposed to the context. However, it says nothing about how relevant that content was for people: was it just background noise while working on their household chores or were they attentive and the content prompted them to take some action? This is what measuring impact may bring to public broadcasters, enriching currently available insights. Impact is an excellent addition for understanding what PSM audiences do with that content. Do they learn things? Do public broadcasters help them to make important decisions such as whom to vote for in upcoming elections? Are they smarter, or at least do they reason better, thanks to what they listen to on PSM channels? Do public broadcasters help them overcome hurdles? Do they help them achieve their dreams?

Some broadcasters have already started in this process of impact measurement,[20] in a trend likely to grow in the next years given the limitations of current measurement systems and the requirement for more accountability and greater understanding of the value delivered to audiences.

Market share in times of fragmentation

Despite its widespread use, market share is starting to become an obsolete metric. In markets that tend towards fragmentation, market share becomes an increasingly useless metric, at least at station level. Market share may work better aggregated at media group level and in combination with qualitative metrics, such as appreciation and value perception.

As shown in Figure 12, market share for Public Radio remained extremely flat between 2010 and 2019, just before the pandemic, when audience behaviour took an unusual path.

PUBLIC SERVICE RADIO MARKET SHARE

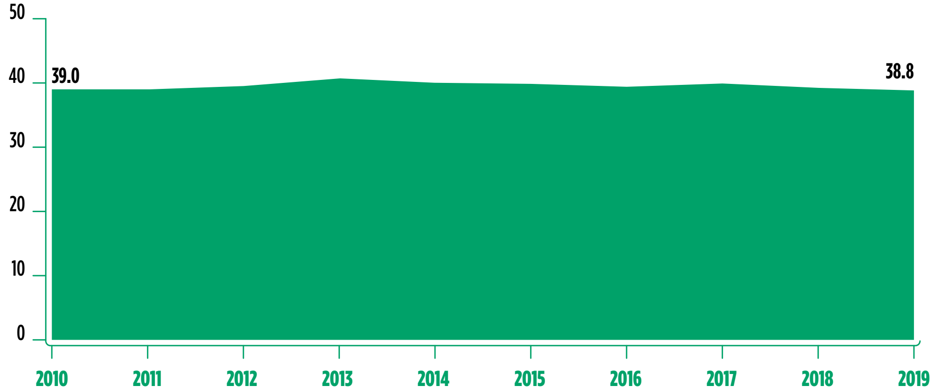


Figure 12 – Measurement period: 2010-2019, all individuals, in %. Note: based on 19 organisations with complete data for the period 2010-2019 – Source: EBU Media Intelligence Service.

Averaged data at the aggregated level seem to suggest a very stable market, but the reality is more complex than that: while European PSM managed to keep a constant market share, when looking at the breakdown of those figures, more and more audiences are coming from the new niche channels.

The results for young audiences look pretty alike: flat during the decade, from 24.4% in 2010 to 25.4% in 2019. As can be seen, absolute figures for this age group are about 15 percentage points lower given the harsh competition with commercial broadcasters, which mainly target this audience group with their CHR and alternative stations.

2.2.3. Funding: where is the money?

In terms of funding, the decade of the 2010s started for Public Service media with the hangover of the 2008 financial crisis. The level of 35.7 million Euros of operating revenues that PSM were generating in 2010 remained remarkably stable during the 10 years of the decade, as in 2019 it was hardly 35.9 million Euros (Figure 13), a mere 0.6% increase that turned into decrease when factoring in inflation.

PUBLIC SERVICE MEDIA OPERATING REVENUES IN THE EBU AREA

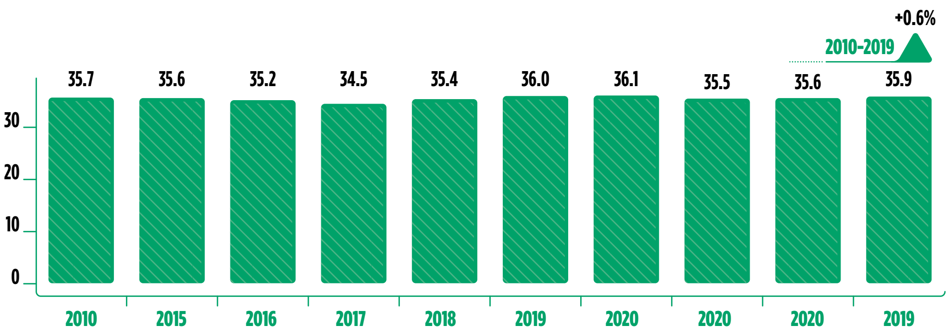


Figure 13 – (Eur Billion, 2010-2019)– PSM Operating Revenues in the EBU Area – Source: EBU Media Intelligence Service

This trend illustrates the fact that PSM funding did not benefit from economic wealth creation in Europe before the crisis hit in early 2020 but rather was economically marginalized. Additional challenges of the COVID-19 crisis cast a very uncertain shadow over the future of PSM operating revenues.

The crisis ignited by the pandemic will hurt PSM organisations, which were only starting to recover from the 2008 crisis. Many were also at least forecasting stability or even slight growth in financial resources in 2020 but were instead confronted with the worst recession of the post-war era, with 70% of EBU countries seeing their GDP contracted by at least 5% according to the IMF. In this regard, 79% of PSM organisations in Europe were expecting a negative or very negative impact of the pandemic on their available resources.[21]

The first revenue stream to be impacted by the crisis was of course advertising, with numerous campaigns suspended from Q2 2020 and a shortfall in advertising revenues due to major sporting events being cancelled or postponed to 2021, while sponsorship revenues were also severely affected by the crisis. Additionally, licence fee revenues are set to suffer from the ensuing recession amid growing financial difficulties among households and businesses, while governments confronting another crisis and asked to support thousands of citizens and companies in need may be tempted to divert resources previously allocated to PSM to other more urgent and pressing issues. This expectation among CFOs of public broadcasters should be confirmed with the publication of their annual results for 2020, still a pending task for many public broadcasters as of this writing.

When considering how much was invested in radio, there is not a straightforward way to calculate it, due to overheads and central services shared across the PSM organisations, as well as increasing digitisation and integration of services, for instance integrated newsrooms. One way to calculate it is to look at countries with separate Public Service Tv and radio organisations, while considering the fact that sometimes PSM remit and scope may not be fully comparable. In 2019, for the eight European countries with separate PSM Tv and radio organisations, the share of total funding for radio-only organisations varied from only 10.2% in Armenia to a majority of total PSM funding with 50.2% in Romania.[22]

In 2019, the average proportion of funding received by radio organisations stood at 27.7%, representing a slight decrease in total PSM funding compared to 2015 (28.3%).

There is an alternative way to look at it, focused on programming expenditures. Data on the breakdown of PSM programming expenditures by media show stark differences. As could be expected, Tv programming expenditures are systematically higher than radio and online programming costs, due to the expense of key sports rights, the high cost of fiction and, generally speaking, higher production costs linked to more complex production that most of the time requires more staff. There is still some need to systematise and fully understand the data, for instance how catch-up content online, which represents the bulk of online offerings for all PSM, is allocated. Having said that, the data provide a certain indication on the position of radio within each organisation.

The proportion of Tv programming expenditures varied in 2019 from 50.7% (FMM in France) to 95.7% (SNRT in Morocco). Correspondingly, radio expenditures varied from less than 1% (TRT in Turkey) to over 20% of total programming expenditures in eight organisations. On average, in 2019, 76.1% of programming expenditures were allocated to Tv programming, 16.1% to radio programming and 2.8% to online programming.

Seeing this figure, it is easy to understand a qualitative element that is very clearly perceived when working with Public Radio colleagues at the EBU: a feeling of being sidelined in favour of Tv, the big brother with more resources.

2.2.4. Collaboration is not an option but a need

As we have seen in the previous pages, the environment in which public broadcasters develop their service is more complex and uncertain. In this context, there is an increasing need to find talent beyond their aging and decreasing personnel, while often it is unclear how much or for how long the knowledge and skills required will be necessary.

From a management point of view, the answer to this challenge has been collaborations and partnerships. It is simply not realistic to think that in the current competitive environment, public broadcasters can do everything on their own. The level of specialisation required, together with the expansion of their remits, makes collaboration not just an option but the right response if these organisations want to remain a core asset of European societies.

Certainly, there is no ideal model of collaboration between PSM and other stakeholders given the variety of partnerships that can exist within a PSM. However, there are ways to improve the results of such collaborations from an early stage, and hence to get the most from them.[23]

A few examples on the production side illustrate this trend:

- More PSM are increasingly turning to the independent production sector to feed their schedules and their online platforms.
- Especially in the last few years of the decade, the explosive growth of the podcast market has generated an ecosystem of independent creators who in many cases have brought that expertise to public broadcasters in the form of dedicated shows. In a few cases this has extended to big tech platforms, as is the case of *Lovers Hotel*, the story of a mysterious murder in a hotel connected to an international terrorist network. This 6-episode podcast-native fiction series was coproduced in 2016 by the Italian-speaking Swiss PSM Rete Due and Amazon-owned Audible Italia.
- Partnerships with cultural institutions or events such as music festivals have allowed PSM to bring those cultural experiences to the listeners, as will be illustrated in the section of this chapter devoted to Covid-19.

Examples also abound on the distribution side:

- Radioplayer is probably the most notable example of collaboration. Conceived as a common national online radio player owned by UK public and commercial broadcasters in 2010, it tried to replicate digitally the analogue dial of radio devices, with the idea of bringing the main national radio players into one single place. The success of the formula was exported to 12 Western European countries within a decade: Norway (2013), French Community of Belgium (2014), Ireland, Austria (2015), Germany (2016), Switzerland (2018), Flemish Community of Belgium, Denmark, Spain (2019), Italy (2020), France and Sweden (2021).

- On the broadcasting side, several countries are moving from FM to DAB following a collaborative approach between public and commercial broadcasters, in some cases creating a dedicated organisation to pilot the transition: such is the case of Digital Radio UK, Radio.no in Norway or the Digital Migration Group in Switzerland.

Although some PSM just use partnerships to increase their legitimacy, the most advanced ones may be partnering for efficiency and the public interest, thus also contributing to a stronger media sector, a goal frequently included in their remit. The analysis of strategic documents from public broadcasters and the public statements from their top managers point towards not only an increase in partnerships and collaborations in the coming years but also more meaningful ones.[24]

2.3. The impact of the pandemic

The Covid-19 crisis hit radio as it hit every other media and every other industry in the world. Unlike other media that saw their consumption increase (television and video streaming services), radio consumption decreased. Of course, the situation varied from country to country, affecting all of them, from Switzerland to the US, from the UK to Sweden, from Spain to Australia. The 20% decrease faced by Italian radios in the first weeks of the pandemic[25] was probably one of the highest figures among those markets that were able to record radio consumption data, as many measurement systems were disrupted.

So, fewer people were listening to radio during the first weeks after lockdowns were declared in most European countries, around March and April 2020. This decrease came as a surprise to many practitioners as they were seeing a huge increase in online consumption data that they could get overnight, in many cases at double digit levels. However, that growing online consumption was not a signal of a growing general consumption of radio, as broadcast consumption plummeted. The online growth, then, was just signalling a change in devices for consumption, which favoured devices with online connectivity such as smartphones, computers, smart speakers and connected Tvs.

2.3.1. Anticipating the future

Did Covid-19 lockdowns give us a glimpse into the future of radio?

Radio consumption patterns tend to be well-established and many of them become routine: switching on the radio when starting the car or preparing the breakfast in the kitchen or using the radio commentary of the football match while watching it on Tv.

While people continued having breakfast normally, during lockdowns most people worked from home and thus had no need to drive their car. They were also unable to watch their favourite football matches as sport competitions were suspended. This meant that many routines were abruptly disrupted and thus the everyday situations in which radio was listened to did not exist anymore.

Radio does not exist in a vacuum but depends on a myriad of situations that makes its consumption relevant for the listeners as it solves a need, from being informed to feeling part of a community, from being energised to learning new things.

Radio listening in the car is a good example of how the changes in habits affect radio consumption. Based on EBU data,[26] I estimate that in 2019 radio consumption in the car was around one quarter of total radio consumption in Europe, with several countries above that figure, for example Poland (above 40%) and France (above 30%). Most of this consumption time disappeared right after lockdown measures were put in place. In Italy, for instance, time spent in the car was reduced by two-thirds after lockdown measures were enforced in a mix of people working from home and people spending less time in their vehicles as roads were less congested. This loss of consumption linked to the loss of the commute to and from work for many people also affected audio consumption through streaming platforms, reflecting again how media consumption is often linked to habits.

Additionally, radio listening from the workplace was reduced too, as many workers were at home, not at the offices or the premises of their companies. Listening from the workplace is a significant part of listening share in some countries. For instance, in 2019 it represented 37% of total listening time in Ukraine, 27% in Estonia, 24% in Finland and 23% in the Netherlands (EBU, 2020b).

The obvious question is whether people working from home still listened to radio despite their change in habits. While some of them did, many did not. In some cases, they did not have the right conditions, as they were sharing workspace with other family members. In other cases, they did not have a radio device at home, or at least a dedicated radio device, making radio listening a less obvious choice.

Is online the future of radio consumption?

Given that change in habits of citizens, the radio success story during Covid-19 lockdowns was the growing online consumption: this partially compensated for the loss of broadcast consumption, but online still represents a fraction of total radio consumption. Based on different national studies, often based on consumption by device, I estimate online consumption to be between 10 and 15% of total radio consumption. This figure is higher in some markets, such as Switzerland and the Netherlands, which triple it. As expected, this figure is growing, at a pace of around 1 percentage point per year pre-Covid.

Growth, however, was suddenly boosted during Covid-19 lockdowns, bringing some people to online radio for the first time, or making occasional users regular ones. In most cases, that was not new listeners but at the expense of previous broadcast listeners. That situation is likely to boost online listening in the longer term, especially if work from home lasts long or becomes something more common after the pandemic. Again, the context will influence the temporary or permanent nature of this change in radio listening.

2.3.2. Special content in difficult times

Where are audiences listening to the same content?

As stated, radio as a medium was not strengthened during the pandemic, as it lost listeners. The situation, however, varied depending on the broadcasters, with clear winners and losers.

For example, public broadcasters seemed to be on the winners' side: for countries with electronic measurement, which was not disrupted during lockdowns, public broadcasters were doing better at the expense of commercial radio despite no additional reach.

On the losing side, commercial broadcasters were more acutely affected by the loss of listeners, as they typically have a higher reach and share in the car, a listening environment that favours the lighter content– such as hit or adult contemporary radio – typically aired by commercial broadcasters.

Public broadcasters did not fall on the winners' side for the sake of being public broadcasters, but as a result of the kind of content audiences were looking for. During the first lockdown, citizens were hungry for COVID-related-news, as they were trying to understand what was going on with the pandemic and with the measures being put in place by health authorities to stop the spread of the coronavirus.

Public broadcasters tend to be news-heavy compared to commercial broadcasters, which in most cases rely on popular and light music formats, cheaper to produce and easier to monetise. Of course, there are exceptions. In markets such as Spain and France, the main nationwide commercial broadcasters are as news heavy as public broadcasters, as this is an arena for competition too, a situation that is starting to develop in the UK thanks to the additional capacity brought by digital terrestrial radio. Times Radio, linked to the renowned newspaper *The Times*, launched nationwide in June 2020 with a news/talk format.

News is important in the schedules of Public Radio, but radio is not usually a primary news source of information[27] and was not a primary news source of information on coronavirus for most people. It was not the place-to-go for news on the crisis; TV played this role more clearly than radio, as did online sources, including online sites of radio stations.

Certainly, many people may not have been used to following developments about the coronavirus crisis via radio, but those who did tended to trust what they heard given the traditional association between radio and trust, as seen in the previous section and confirmed by dedicated surveys during the lockdown.

This boost for news happened at the expense of other genres. For example, live sports disappeared from radio and programmes around sports had much less interest for listeners as competitions were halted.

Is this the future of radio content?

Consumption patterns during Covid-19 lockdowns do not necessarily reflect a permanent change in the content radio listeners consume. In fact, after news consumption peaked around mid-March 2020, some surveys started to detect a desire for 'corona-free' spaces across media. This was especially the case in radio, as it is not used for news as much as other media. In this situation, the role of radio shifted from informative to release for many listeners, a space to relax and disconnect from the frenzy of corona-news.

At this point, the reader might be wondering if perhaps audiences migrated to podcasts. Well, here statistics are even more difficult to obtain given the fragmentation of the markets and the lack of common industry standards for measurement and analytics. However, the little evidence available points to a decrease in podcast downloads for many publishers. In the US, where more data are available, some publishers reported drops of up to 20%. As podcasting is a fast-growing market, year-on-year figures still looked good in many cases. However, these figures refer to downloads, which in many cases are automated through RSS readers. The actual drop in listening might have been even more pronounced as many podcast apps downloaded podcast episodes automatically. Some genres such as sport may have been especially affected, in the same way that sports content was affected on linear radio.

But who was listening to what?

As noted throughout this section, radio audience measurement struggled to measure the true dimension of listenership during such extraordinary times as the Covid-19 pandemic. The analysis drawn in the previous pages suffers from a data black hole: many markets across Europe stopped the measurement of radio consumption.

The reasons for such an unusual situation were diverse:

- Face-to-face interviews stopped in markets such as Ireland and Spain due to social distancing measures.

- In other cases, face-to-face was used to recruit panellists for electronic measurement, like in the US, so panel sizes were compromised.
- In general, however, markets with electronic measurement continued to provide data on a permanent basis. This included Switzerland, Norway, Iceland, Denmark and Sweden in Europe, but also Canada and the US.
- In cases such as France, staff doing the calls for CATI interviews were unable to reach their offices and research was stopped as it was not possible to recreate a remote system that would have allowed them to work from home.
- Also, measurement via diary was affected, such as in the UK, where recruitment was face-to-face. Other countries with diaries, such as the Netherlands, were not affected, as recruitment was not face-to-face and there was no need for technicians to install any equipment. Most of the diaries there were already filled via mobile.

As a result, many markets stopped measurement and agreed on different ways to keep data, from estimations to alternative measurements or to a general agreement to accept as valid the latest available data.

2.3.3. What was special about Public Radio?

Public radio used the opportunity created by a terrible pandemic to showcase its value again. In times of crisis, Public Radio was radio at its best, clearly illustrating why public media are an essential infrastructure of modern societies.

Public radio was able to react quickly and adapt to the needs of the audiences while at the same time shifting to completely new working conditions. Working from home and splitting teams to keep people isolated and avoid coronavirus spread were widely adopted measures. Radio stations mostly remained open and continued to air live and recorded programmes, although in some cases they struggled to keep the number of live shows.

On the technical side, a wide range of tools for remote production, including some which were software-based, were used, together with more flexible workflows.[28] Remote production was one of the main challenges. It translated into working from home on laptops or even tablets for live reporting, as well as the selection of a specific codec for contribution and access to pooled virtual production workstations.[29]

On the editorial side, Public Radio increased its traditional heavy reliance on news programmes to satisfy the need for information about the pandemic among audiences. Public radio did this not only in more difficult conditions, working remotely in many cases, but also in a context in which accessing sources became more difficult due to the multiple restrictions set across all segments of society and many individuals' logical fear of being infected.

A major role played by Public Radio was to act as a trusted source of information. In some cases, its schedules shifted from typical peak drive time and lunch time slots to steady streams of information throughout the day, especially during the first lockdown.

Beyond news, one of the areas in which Public Radio made an impact was its support for arts and culture during a terrible period for these professions. Similarly to sports, an economically fragile sector such as arts and culture suffered a terrible hit as it was unable to reach its audiences and activity stopped almost completely.

As part of this quick adaptation, Public Radio exploited intensively digital ways to support audiences and artists in an agile way. As in many other sectors of the economy and the media, digital transformation advanced several years nearly overnight.

In connection with this, Public Radio became a hub of cultural institutions during the crisis by partnering with all kinds of organisations, notably cultural institutions. Amidst a terrible pandemic and with many institutions struggling, there was an obvious case for working together with other institutions sharing similar values and goals.

Support to arts and culture, as well as artists, took at least four different forms[30]:

- Increasing exposure for local artists: throughout Europe, cultural life as we knew it came to a standstill, threatening the income of many from across the creative sector. Public radio acted by highlighting works of local artists through special campaigns, programming initiatives or increasing quotas for national and newcomers' music. It aimed to foster a sense of solidarity with artists among audiences.
- Stepping in for cancelled cultural events: whereas stores, schools and restaurants quickly reopened in many countries, most festivals and other major cultural venues and events did not have the chance to resume. Public radio makers built upon their longstanding relationships with cultural institutions to provide alternative stages for the benefit of both those performing and those enjoying the performance. They did so across multiple fields of arts, whether music, literature, theatre or cinema.
- Supporting creatives in need: responding to the crisis, Public Radio organisations acted quickly to support artists financially. They set up direct or indirect funding opportunities such as immediate aid or additional short-notice commissioning. Whereas the focus was placed on immediate help in the early months of the pandemic, Public Radio organisations later refined their budgets and strategies to help counter the long-term impact Covid-19 may have on the creative sector.
- Providing a forum for artists and their crisis experience: across Europe, Public Radio served as a hub of cultural life – and even more so during the crisis. Public radio journalists consequently accompanied artists and creatives throughout the pandemic, continuously asking them to report what they were going through. Moreover, art-

ists were performing from home at the invitation of Public Radio, thereby staying connected with their audiences through the airwaves, visual radio, online and social media.

More broadly speaking, the EBU identified eight different ways in which Public Radio supported citizens during this critical moment:

- Providing and curating trustworthy information: apart from regular news broadcasts about the pandemic or the transmission of public statements and press conferences by government and health officials, Public Radio stations informed the public through dedicated Covid-19 formats distributed over the air and/or online. PSM journalists jump-started special formats featuring experts from medicine and other relevant fields of science and reached out to audiences to provide them with the information needed in times of uncertainty.
- Encouraging audiences to stay at home: with unprecedented lockdown measures being introduced on short notice in many countries, Public Radio stations showed a lot of creativity in encouraging their listeners to stay at home. Across Europe, they asked celebrities to serve as testimonials for their stay-at-home campaigns, produced special jingles and reshaped their programmes to serve the suddenly arisen needs of confined citizens.
- Providing release during lockdown: Public Radio stations across Europe opened their archives to feature programming treasures during the pandemic, both fictional and documentary radio features, not to mention concert recordings and other music-related content. They stepped in at a point when fatigue about the negativity of Covid-19 news was on the rise, creating new entertainment shows to offer distraction and safe havens for emotional release and comfort.
- Supporting a sense of community: during the crisis, public attention was granted to professions that are usually not in the spotlight, such as nursing and supermarket staff, postmen and parcel carriers, or truck drivers. Public radio mirrored this attention by giving airtime to citizens' wishes to express their gratitude towards these professions – or just towards their neighbours. It stepped in to provide at least auditive and virtual places to meet, greet and thank friends, family and fellow citizens when social contacts had to be reduced to a minimum.
- Supporting citizens in need: building upon their experience in radio charity and encouraging networks of volunteers, Public Radio helped support the most vulnerable citizens throughout the pandemic. Besides, it fulfilled its remit to inform audiences by providing airtime to citizens in need of social, legal or medical advice.
- Supporting kids and parents at home: with schools closed and kids and parents confined at home across most of the continent, Public Radio stepped in by increasing and remaking educational and children's content. Public radio stations also provided parents with ideas about what to do at home – both in teaching and leisure time. Public

radio makers produced additional content to entertain, distract and educate the whole family.

- Providing emotional support: responding to the pandemic, Public Radio stations across Europe increased opportunities for listeners to call in and express their worries. They provided a forum to share emotional discomfort and concerns about the current situation and the future. Psychologists and other mental health experts were asked to provide support on the microphone for audiences confined at home.
- Giving voice to citizens' experiences: to provide a forum for what citizens were going through in the weeks of confinement, a new situation for most of them, Public Radio stations developed dedicated shows and podcasts. They provided insights into how the crisis affected different groups within society. They increased opportunities for listeners to participate in their programming and share what they were doing, thinking, and experiencing.

2.4. What's next? The long post-pandemic

The future does not exist yet, nor does it follow a linear trajectory, so it cannot be predicted. In fact, there are many possible futures, also for the radio.

In order to understand what the future of radio might look like, we need to capture current signals, because they point towards those possible developments. And many of those signals are already depicted in the previous pages of this report.

Certainly, Public Service radio has a preferable future, one where it keeps a dominant position and can continue providing high quality services to listeners. However, the radio market has evolved enormously in the last decade and will continue to do so, even at a faster pace. Certainty is not a characteristic of that market anymore but constant change is: change in technology, in players, in content, in services offered, in talent, etc.

2.4.1. What will radio be, anyway?

Radio has been out there for a century, but the last decade has probably seen the most changes for the medium: for the first time, digital distribution became the main way to access radio for millions of people in some markets, on-demand consumption became the norm for certain target groups, a voice user interface for radio was successfully launched commercially and adopted by millions of people, and availability of content sky-rocketed.

All these changes also imply that radio is not radio anymore. Said in a different way, radio is becoming a core component of something bigger, the audio market, as clearly reflected in the first chapter of this report.

This audio market is increasingly complex, with plenty of players that did not exist a decade ago, adding competition to a previously rather stable market. Investment, ad spend, talent and even content are migrating from radio to the wider audio market, making this market more radio-like. This also means more competition for traditional radio products.

There are several important implications for public broadcasters in this shifting marketplace.

To start with, the traditional incumbent position of public broadcasters will be diluted. In most European markets, where they used to be the big fish, they are now competing against bigger and deep-pocketed giants such as Spotify, with a more widespread audio footprint, coming from the music business to radio via podcasts.

Even more concerning for radio, including PSM, might be the case of Amazon, one of the biggest companies in the world, which operates Amazon Music for streaming music and Audible for audiobooks. Both services started offering podcasts at the end of 2020. On top of that, Amazon owns the voice user interface Alexa and Echo smart speakers. Not only does Amazon have vast amounts of cash available but also a history of cross-subsidies from profitable to non-profitable businesses. As in the case of Amazon Prime Video, Amazon's goal might not be profitability on its own but increasing loyalty and keeping users within the Amazon ecosystem, which always ends up in its e-commerce site.

Apple and Google are other giants that have a say in the audio world, notably via podcasts and smart speakers, and which may have limitless access to funding to compete in the audio space.

More specifically, Public Service radio and its core offer of news may also feel the pressure of news publishers coming to the podcast space, as they just need to adapt their content to the right format (Newman, Gallo, 2019).

The list just goes on and is likely to increase in the coming years. There is virtually no safe space for (Public Service) radio, with its mainstream programmes threatened by big players and specialised offering challenged by podcasting and its ability to create more and more specific niches.

The implications may also be important in terms of talent acquisition and retention, as public companies may be at a disadvantage against commercial companies in terms of the compensation they can offer or even their opportunities for growth.

Beyond factual aspects, there is also an emotional aspect that should not be underestimated: the pessimism among public broadcasters about their future. This is palpable when they meet: there is a general narrative of decline. It is understandable, given these companies' past and their dominance on the market, but when your baseline is so high, it is likely to take the decreasing path. When this happens, you have one of two options: to focus on the loss, referring to a previous time when the context was completely different and simpler to manage, or to focus on the future based on your position, which as seen in this chapter, is still very relevant across Europe. It is not possible to expect audience levels of the past with the increased amount of competition – audio and non-audio – that the market faces nowadays. And audience numbers will likely decrease even more in the coming years, in the same fragmentation process that the Tv industry has faced.

2.4.2. Public Service Radio: it's the service, stupid!

As we have seen, Public Service radio is under threat and often pessimistic. It is the incumbent player threatened by disruptors. As such, its stance could be to try to defend its position and keep the current model as long as possible, perhaps with some tweaks, or to start participating in the disruption game too. These are the two extremes of a continuum, so many public broadcasters will likely stay in an intermediary position depending on their strategy.

There are areas where public broadcasters will face increasing difficulties to compete against players that are becoming bigger and in many cases are in the position to develop economies of scale internationally, which public broadcasters cannot given their domestic scope. This applies to online giants but increasingly also to commercial radio groups.[31]

Public broadcasters, then, need to focus on where they could bring unique value. Unique features of public broadcasters are their values, which form their core identity, and which determine their service orientation. These values are not restricted to traditional formats, but they could essentially be distilled into multiple and innovative formats.

The core values of Public Service media, as defined by the EBU,[32] reflect the current European society and are thus valid for the future:

- **Universality:** services are provided for all members of society, offering a plurality of views and empowering citizens to participate in the democratic debate.
- **Independence:** brands and services that generate trust in the audiences and deliver content, notably news, that is impartial and independent from political, commercial and other influences, contributing to an informed and cultivated citizenship.
- **Excellence:** high standards of integrity and professionalism to enrich audiences and foster their participation.
- **Diversity:** different generations, cultures and religions, majorities as well as minorities need to have a place to express themselves in Public Service media so views can be exchanged between those with different backgrounds, histories, and stories.
- **Accountability:** transparent and subject to public scrutiny.

- **Innovation:** creativity at the centre, with new formats and connections to audiences.

A recent example of PSM repositioning is that of a youth music station of a Nordic country. Declining audience figures brought the company to rethink the music strategy of its youth music channel, reaching the conclusion that, in the age of streaming, their unique value might be not in the content but in the context: doubling down their efforts on music journalism and introducing new artists, not necessarily new tracks, which is a task that streaming platforms can increasingly do more effectively via algorithms.

This is a bold strategic move based on value and uniqueness, thinking how to better serve audiences, and differentiating radio from streaming platforms so music fans have incentives to use both streaming and radio.

This example effectively combines product innovation with audience needs, with a focus on the user experience: what value is delivered to the user? Where is the 'service' part on it? How do listeners benefit from listening to Public Service radio? Why do they listen to it? What is the unique selling proposition of Public Radio?

For PSM, this means understanding audiences at a more profound level than they are currently known, up to the level of the impact public broadcasters have in their lives, an area where public broadcasters such as ABC, the BBC, DR, NPO, UR and VRT excel.[33]

The purpose is not to increase the size of the audience. The size will tend to decrease naturally as competing players multiply, thus fragmenting audiences. It is not about quantity anymore, but about quality time.

2.5. Future-proofing Public Radio: a tale of sustainability

All the analysis presented above brings us to the identification of key risk factors for Public Service radio. These are the broken – or about to break – elements that Public Radio needs to rethink and fix:

- delivering appealing content;
- getting distribution right;
- understanding audiences better;
- rethinking audience measurement;
- ensuring adequate funding.

The following table summarises the level of risk in the short, medium and long term for Public Radio.

RISKS FOR PUBLIC SERVICE RADIO

RISKS	SHORT TERM RISKS - 2022	MEDIUM-TERM RISKS - 2025	LONG-TERM RISKS - 2030
Content	Medium-Low	Medium	Medium-High
Distribution	Medium	Medium-High	High
Audiences	Medium	High	Very High
Audience measurement	Low	Medium	Medium
Funding	Medium-Low	Medium	Medium-High

Figure 14 – Elaboration by David Fernandez Quijada

Delivering appealing content

Production of audio content exploded between 2010 and 2020: more broadcast channels (mostly thanks to DAB and the addition of FM licences in analogue markets), more linear channels online, and, especially, more native podcasts.

This means that competition has grown dramatically, in parallel to the increased value of premium content: shows able to gather big audiences in times of audience fragmentation reach this premium status.

Unsurprisingly, premium content is often linked to top personalities. Anchors, announcers and disc jockeys able to attract big audiences have always been well rewarded but this is reaching new levels in the now crowded audio space. Spotify, Apple and other online giants are greatly contributing to this inflation, poaching radio talent from traditional radio, notably Public Radio.

Public service radio, then, faces two major challenges in terms of content creation:

- producing shows appealing enough to attract the right audiences;
- acquiring and retaining the talent who will be able to create and deliver those shows.

For the first challenge, Public Radio content continues to reach big audiences and in many countries the biggest radio shows belong to Public Radio. However, these high audience figures also mean that there is more room to fail. In radio, the game is changing from programmes able to attract large audiences to a wide range of programmes able to deliver value to small audiences. Adding together those small audiences, Public Radio might be able to serve a high percentage of the population.

Podcasts are the epitome of this paradigm change, a long tail of specialised and hyper-specialised shows that bring a limited but rather loyal audience. Podcasts are rarely general interest, while this is one of the most common formats in traditional linear radio.

To face this challenge, more risk-taking might be needed. If linear schedules are in decline, keeping the same formats is unlikely to reverse the trend. Often, broadcasters feel paralysed by the possibility of losing even more audience if they change their schedules instead of looking at potential audience gains.

Therefore, Public Service radio needs to think thoroughly what radio products have become obsolete with digitisation: what is better served by other means, but radio keeps doing by inertia? What topics need to be crafted in a different way to deliver unique value via radio or audio? What is valuable and unique in Public Radio's output?

In the podcast format, the risk-taking attitude might be easier, as there are not many audiences to lose but just to win. But focus on value is likely to deliver good results too.

For the second challenge, acquiring and retaining talent, public broadcasters are in an odd position. Traditionally, they have been a school of talent for radio personalities but in time those personalities have often become the bulk of competitors' talent. Currently, however, talent is coming from a broader range of origins, including digital natives who have created their own personal brands and followings. Additionally, public broadcasters often have limitations to compete with commercial broadcasters and the online giants in terms of salaries, at least for the big names. To face this challenge, Public Radio needs to become more serious and devote more resources to finding and nurturing the right talent and offering attractive career paths.

Getting distribution right

Transition periods are uncertain by definition and radio's most uncertain aspect right now is distribution. It is not just how to shift broadcasting from analogue to digital terrestrial but how and at what pace digital distribution is transforming audio consumption: should it be analogue or digital? Should it be broadcast or online? Should it be linear or on-demand? How much should it rely on owned versus third-party platforms? What will distribution in the car look like?

As can be seen, there are many questions. Their answers imply important strategic decisions that have an influence on the allocation of resources not only for distribution purposes but also for content production.

Unfortunately, the answers to these questions are not straightforward. In a market in transition, uncertainties abound.

- It is widely agreed that radio will be more digital but it is unclear if this will mean switching off FM. The lack of alternative uses for the FM band puts no pressure on freeing these frequencies. Even if it is decided to eliminate FM, the fast Norwegian shut down process is unlikely to be replicated in other countries, as the recent extension of FM switch off dates in Switzerland – despite all the good indicators – suggests.[34]

- The growing number of connected devices and the decreasing ownership of dedicated radio devices together with a very low baseline for online consumption means that radio will be more listened to online in the future. This will be more clearly seen in on-demand, which offers a higher added value than online linear radio compared to linear broadcasting. However, the level of replacement of broadcast signals remains highly unclear, questioning short- and medium-term investments in broadcasting, notably its digitisation.
- Linear is declining as it is coming from a very high baseline, while on-demand is taking the opposite direction, quickly growing from a very low baseline. There seems to be room for both types of consumption but nobody knows at what levels consumption will stabilise. Additionally, it is unclear how much on-demand listening comes from linear radio and how much is new listening, in the same way that listening lost by radio might be moving to on-demand but also could be becoming non-listening at all.
- Third-parties make it easy for new entrants to reach audiences, as they do not require a dedicated infrastructure. The downsides are the loss of the direct relationship with audiences (including understanding their listening behaviour), the terms and conditions imposed by those third-party players, and the additional costs required to prepare the content in specific formats and quality levels required.
- The near monopoly that radio has enjoyed for decades in the car is coming to an end. Although slower than originally predicted, connectivity is arriving to the car and data packages are becoming more affordable. Basically, telecommunications providers and Internet giants will not lose the opportunity to connect vehicles, where people spend so much of their time. The interests of so many players will make the competition for a prominent position on the dashboard tough, hence radio's conundrum: should it attempt the challenge of keeping radio prominent on the dashboard on its own, or should it just rely on third-party players such as Apple or Spotify, which can incur all the necessary expenses to develop a proper platform for the car?

These questions are relevant for the entire radio industry, but notably, distribution has traditionally required a coordinated approach among players. In cases such as the transition from FM to DAB or Radioplayer, public broadcasters have shown that they could bring different players together to collaborate in technology – and compete in content.

Understanding audiences better

Radio audiences are in decline. They skew old and there is a generational gap: every new generation listens less to radio than previous generations at the same age. On one side, this is normal given the increase in competition, not just from audio and media but from any other activity, from entertainment to sport practice. On the other side, it is a worrying trend that needs to be reversed if radio wants to have good prospects for the future.

Still today, reach, market share and time spent listening are the golden metrics used by the radio industry, both to sell ad inventory to advertisers and to legitimise Public Radio's work.

However, the number of ears listening to a programme or for how long those ears listen to a show tell nothing about how relevant that content is. Radio is often listened to as a background medium, while driving, doing exercise, working, studying, etc., thus with limited levels of attention towards the content.

The key questions here are: how relevant was that audio content for the listeners? How did the content bring something informational, educational or entertaining to those people? What was the effect on them? Did they leverage that content to do anything meaningful in their lives?

This is all about the value that audiences receive from the content they consume. It is not an automatic effect and value should not be taken for granted. There is content with small audiences that is very meaningful to them, and conversely, widely consumed content that brings little to those audiences. Public radio needs to work in terms of value delivered, as in many cases it has the luxury of independence from advertising and sponsorship revenues.

Rethinking audience measurement

Radio measurement systems are often questioned… and have been questioned already for some time.

In radio, the measurement situation contrasts a lot with Tv and its electronic measurement systems, widely adopted and standardised worldwide. During the Covid-19 pandemic, Tv measurement suffered problems linked to lockdowns, social distancing measures and the limitations on mobility, but in most cases the contractors were able to solve these problems via remote assistance to panellists and self-installable kits for new ones, among other initiatives.

In the case of radio, where electronic measurement is the exception more than the rule – just five radio markets in Europe are currently using electronic measurement – the pandemic showed the fragility of a measurement system already questioned prior to this crisis.[35] Measurement systems are a key element for the strength, viability, and long-term sustainability of any media market, as they generate the currency that allows the market to be traded. It is the current struggle that podcasts are trying to solve and that prevents them from taking more ads spend from the radio business.

This trade element is not always essential in the case of Public Radio, which mostly relies on public funds for its operation. In this regard, it's not such a short-term critical element for Public Radio but in the medium and long term it can pose serious obstacles to understanding what works and what does not work while also questioning its legitimacy: how does it perform? Who is it reaching? Who are under-served audiences? How is it doing with specific target groups such as young audiences?

In order to future-proof the medium, the measurement currency needs to be strengthened and public broadcasters can play a leading role. The Netherlands seems to lead the way here with a new tool that measures audio listening passively across all platforms and devices, as recently announced.[36] The more sophisticated the measurement systems are, however, the more expensive they become. It is unlikely, then, that this kind of solution will be broadly adopted in the short term in markets that are suffering a double pain:

- Radio ad spend does not tend to grow in most markets, being flat at best. Thus, it is unlikely that companies, notably commercial broadcasters, will devote more resources to develop the current measurement systems – with few exceptions, paid by the stations subscribed – unless there is a very strong business case.
- Advertising expenditure, which represents the main funding source of the industry, is pro-cyclical with the economic situation so funds will not be available in the period immediately after the pandemic to invest in this kind of solution if economic recovery takes the usual time it has required in previous crises.

In this context, a role emerges for Public Service radio to lead the transformation of audience measurement systems. However, it needs to demonstrate leadership and the capacity to bring together all the relevant players, showing the additional value of a strong public broadcaster for the market. This situation is something that Public Radio cannot solve alone but in cooperation with the industry. Its nature, however, puts Public Radio in a privileged position to lead the industry in this area.

Ensuring adequate funding

In most European markets, public broadcasters have seen no positive evolution of their funding in the last decade. In most cases, they have lost purchasing power due to inflation. While commercial counterparts are often in no better position, the situation contrasts with the big online players such as Spotify and Amazon. As seen in the previous chapter, they have been investing amounts beyond the reach of any public broadcaster in acquiring other players, ensuring exclusive content, and poaching talent from traditional players.

Funding is essential to make public broadcasters competitive against those players, although any significant increase in public funding will meet criticism from commercial broadcasters.

Funding is becoming more important to acquire, nurture and retain talent, to invest in innovative formats and platforms and to fund all the new needs of digital distribution. Ambition at the level of BBC Sounds requires investment and exclusive content, which has an increasing cost.

In the longer term, funding for Public Service media requires safeguards and long-term planning, as well as including sustainability among its key priorities.

Notes to the Second Chapter

1 EBU Media Intelligence Service (MIS), "Radio Distribution Networks Dataset", 2021, members only report

2 D. F. Quijada, "Distinctiveness of Public Radio in the Age of Digitization", in Journal of Radio & Audio Media, 24(1), 2017, p. 77-89

3 P. Barwise, "There's no public benefit in BBC programmes being «distinctive»", in lse Media Policy Project Blog, London School of Economics, Londra, 2015, https://blogs.lse.ac.uk/medialse/2015/11/20/theres-no-public-benefit-in-bbc-programmes-being-distinctive/

4 EBU Media Intelligence Service (MIS), "Diversity and Public Service Media", 2021, members only report

5 VV.AA., Coesione sociale. La sfida del Servizio Pubblico Radiotelevisivo e multimediale, by Rai Ufficio Studi, Rai Libri, Roma, 2020

6 For South 180: R. Suárez Candel – D. Fernández Quijada – A. Valencia Bermúdez, "Public Service Media and Territorial Cohesion in Europe", in VV.AA., The Public Service Media as drivers of Territorial Cohesion, by Rai Ufficio Studi, Roma, 2021, pp. 91-213

7 J. Nebe, "Shuffeln im Radio", in Süddeutsche Zeitung, 24 August 2020: www.sueddeutsche.de/medien/swr3-app-shuffeln-im-Radio-1.5008976

8 EBU Media Intelligence Service (MIS), "Media Intelligence Survey datasets 2021 Online", 2021, members only report

9 D. Fernández Quijada, "EBU Finds That Radio Is in the Air", in Radio World, 12 July 2021: www.Radioworld.com/columns-and-views/guest-commentaries/EBU-finds-that-Radio-isin-the-air

10 EBU Media Intelligence Service (MIS), "Radio Distribution Networks Dataset", op. cit

11 Ibidem

12 L. Pólak, "Český rozhlas rozšířil pokrytí dab+ na 95 procent populace a oznámil vypnutí středních vln", in Digitálni Radio, 17 September 2020: https://digital.rozhlas.cz/cesky-rozhlas-rozsiril-pokryti-dab-na-95-procent-populace-a-oznamil-vypnuti-8296374

13 Ibidem

14 EBU Media Intelligence Service (MIS), "Radio Distribution Networks Dataset", op. cit

15 D. Ek, "Audio-First", op. cit.

16 Radio France, "Toujours mieux connectés aux français. La stratégie numérique de Radio France", October 2020: https://www.radiofrance.com/sites/default/files/2020-10/RF_DP_Numerique_10-2020_VDEF.pdf

17 K. Clifton, "BBC podcasts on third-party apps", in About the BBC blog, 26 March 2019: www.bbc.co.uk/blogs/aboutthebbc/entries/d68712d7-bd24-440f-94a0-1c6a4cdee71a

18 RTBF, "Radios en streaming: des problèmes techniques indépendants de notre volonté",

in RTBF Info, 28 October 2016: www.rtbf.be/info/dossier/bon-a-savoir/detail_Radios-en-streaming-des-pro-blemes-techniques-independants-de-notre-volonte?id=9442396

[19] Despite the general pattern, there are exceptions. For example, Spain and Portugal have never enjoyed a public monopoly in radio (Arboledas et Bonet, 2013), while in Luxembourg the monopoly was given to a commercial company, RTL

[20] EBU Media Intelligence Service (MIS), "Impact Measurement Casebook", 2021, members only report

[21] EBU Media Intelligence Service (MIS), "Funding of Public Service Media 2020", 2020, members only report

[22] Ibidem

[23] Ibidem

[24] Ibidem

[25] GfK, "L'ascolto della Radio ai tempi del Covid-19, Briefing", 2020

[26] EBU Media Intelligence Service (MIS), "PSM Radio Audience. Dataset, 2020", members only report

[27] VV.AA., "Digital News Report 2020", for Reuters Institute for the Study of Journalism, University of Oxford, 2021, https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2020-06/DNR_2020_FINAL.pdf

[28] EBU Radio and Audio News Group, Roundtable Summary. "EBU Member Responses to Covid-19 Crisis, 2020", members only report

[29] Ibidem

[30] EBU Media Intelligence Service (MIS), "Covid-19 Crisis. Public Radio Response to the Pandemic", 2020, members only report

[31] M. Bonet, – D. Fernández Quijada, "Sounds without borders: Exploring the cross-national expansion of commercial European Radio Groups", in European Journal of Communication, Online First, 2021

[32] European Broadcasting Union, "Empowering Society. A Declaration on the Core Values of Public Service Media", 2012: https://www.ebu.ch/files/live/sites/ebu/files/Publications/EBU-Empowering-Society_EN.pdf

[33] EBU Media Intelligence Service (MIS), "Impact Measurement Casebook", op. cit

[34] J. Allemann Brancher, "Utilisation de la Radio numérique en Suisse. Analyse des tendances Automne 2020", 25 février 2021: https://dabplus.ch/wp-content/uploads/2021/02/GfK-Utilisation-Radio-Automne-2020-FR.pdf see also PressePortal, "UKW-Abschaltung nach ursprünglichem Plan", 26 August 2021: www.presseportal.ch/de/pm/100086886/100876267

[35] EGTA – Association of Television and Radio Sales Houses, "Radio Audience Measurement", EGTA Insights series, January, Brussels, 2018

[36] Kantar – IPSOS, "Kantar and IPSOS appointed to deliver total media audience measurement solution in the Netherlands", Press Release, 31 March 2021: https://www.ipsos.com/en-nl/ipsos-and-kantar-appointed-deliver-total-media-audience-measurement-solution-netherlands

Other bibliographical references

AIMC, "Marco general de los medios en España. Asociación para la investigación de los medios de comunicación", Madrid, 2021: https://www.aimc.es/a1mc-c0nt3nt/uploads/2021/02/marco2021.pdf

L. Arboledas – M. Bonet, "Radio on the Iberian Peninsula: Autarky, revolution and convergence", in *International Communication Gazette*, 75(2), 2013, p. 205-224.

BBC - British Broadcasting Corporation, "BBC Distribution Policy", 2018: https://downloads.bbc.co.uk/aboutthebbc/insidethebbc/howwework/policiesandguidelines/pdf/bbc_distribution_policy.pdf

K. Clifton, "Next phase of changes to some local BBC Radio Medium Wave services", in *BBC Media Centre*, 14 April 2021: https://www.bbc.co.uk/mediacentre/articles/2021/next-phase-of-changesto-some-local-bbc-Radio-medium-wave-services

G. Enli, "The Nordic experience demonstrates why «distinctiveness» downgrades the debate about the BBC", in *LSE Media Policy Project Blog*, London School of Economics, 2016: https://blogs.lse.ac.uk/medialse/2016/04/19/the-nordic-experience-demonstrates-why-distinctiveness-downgrades-the-debate-about-the-bbc/

N. Newman – N. Gallo, "News Podcasts and the Opportunities for Publishers", *Reuters Institute for the Study of Journalism*, University of Oxford, 2019: https://reutersinstitute.politics.ox.ac.uk/sites/default/files/2019-12/Newman_Gallo_podcasts_FINAL_WEB_0.pdf

D. Tambini, "Is it possible to regulate Broadcasting for «Distinctiveness?»", in *LSE Media Policy Project Blog*, London School of Economics, 13 May 2016: https://blogs.lse.ac.uk/medialse/2016/05/13/is-it-possible-to-regulate-broadcasting-for-distinctiveness/

Chapter 3

Next in radio. A range of innovations and strategies in Europe and North America

by Tiziano Bonini, Sylvain Lafrance, Albino Pedroia, Marta Perrotta, Louise Hélène Paquette, summary by Albino Pedroia

3.1. What do we mean when we talk about innovation in European Radio Broadcasting?

As we have seen so far, there are many actors destined to influence the enjoyment of classic media. They must adapt the variety of their content, their editorial form and their consumption modes to suit the new tastes of the public. It is this evolution that we have studied and present in this chapter, not so much from a medium- to long-term perspective (which, moreover, is extremely difficult to identify as the phenomenon is rapid and unpredictable), but concretely, by analysing the editorial innovations implemented and the new organisations of the processes of conception, production and distribution of programmes and, more generally, of content.

The objective, therefore, is to present some cases of radio innovation that are taking place in Europe, both in Public Service and private companies. From the interviews, it emerged that radios innovate in many different fields and there is no single concept of innovation, but many: technological, editorial, related to production processes and internal management models. Through the interviews we conducted, macro-trends emerged to classify the different types of innovation in Europe, but at the same time national specificities were also noted that do not represent any general trend. There are innovation processes that are adopted in several countries and others that are typical of a very specific social, political and economic context.

Three main sources enabled us to identify the changes taking place: a desk survey of academic sources and EBU documents (reports of seminars and study days, Radio Innovation Fund reports, reports of internal working groups on innovation, platforms, strategy); our personal experience as Radio studies researchers; and interviews with executives of leading public and private Radio stations in nine countries.

From these sources, we constructed a narrative organised into categories of innovation and for each of these categories we cited the most interesting cases, supporting them with some direct quotes from the interviews.

The people interviewed have management functions, editorial content development responsibilities or innovative production processes. They all have one characteristic in common: they perform or have performed a purely operational activity in the production process. The interviews conducted (approximately 30 hours) were grouped by topic, then a selection was made. In the following text only some extracts are given, referring to the following interviewees listed below.

Initials of the main interviewees cited:[1]

AM Andrea Montanari (Director Radio 3, Radio Rai - Italy)

AV Andrea Vianello (Director Radio 1, Radio Rai - Italy)

CB Cilla Benkö (Director General, Sveriges Radio SR - Sweden)

DF Daniel Freytag (SWR Audio Lab developer, Südwestrundfunk SWR - Germany)

EC Elena Capparelli (Rai Digital Director, Rai - Italy)

GD Graham Dixon (Former Radio Director, EBU - Great Britain)

IS Ilaria Sotis (Vice Director Radio 1 - Radio Rai - Italy)

JH Javier Hernandez Bravo (Former Director Radio Nacional de España RNE - Spain)

MAF Marko Ala-Fossi (Tampere University, former YLE - Finland)

MJE Maria Jesus Espinosa de Los Monteros (General Manager Prisa Audio - Spain)

MR Michael Reichert (Head of Digital Radio/Future Radio, Bayerische Rundfunk BR - Germany)

PM Paola Marchesini (Director Radio 2, Radio Rai - Italy)

RS Roberto Sergio (Rai Radio Director - Italy)

TG Tomas Granryd (Vice-Chairman Digital Committee and Head of Digital Partnerships, Sveriges Radio SR - Sweden)

TGH Tine Godsk Hansen (Commissioning Editor Podcast, DR - Denmark)

TS Thomas Schippers (Director Organisation and Video Strategy, Nederlandse Publieke Omroep NPO - The Netherlands)[2]

3.2. Identified innovations in Europe

3.2.1. Editorial evolution

Linear programmes

> Innovation in linear channels cannot be ignored [GD].

These are Graham Dixon's words to remind us that listening is still largely tied to linear channels. Digital radio offers great opportunities in this respect. Examples to mention, in the UK, include the launch a few years ago of Radio 5 Live, with which the BBC combined news and sport in a totally spoken word channel. This is

> one of the most intelligent and forward-looking innovations of recent years. *(...)* There are many cultured and informed people who are interested in sports. But there are also a lot of sports fans who are not familiar with the consumption of news. Combining sports and news into a spoken word channel greatly increased the BBC's news audience. Since it was actually the same presenters talking about football and interviewing politicians, I think it is these interesting combinations of different subject areas that made the difference in innovation [GD].

Another example is a station in Bavaria broadcasting nostalgic music for older people. In the analogue radio scene, no one would have invested in such a channel. But now a 24-hour Bavarian-only music channel can be made, a niche format that covers an older audience and generates interesting numbers.

For RMC (Radio Monte Carlo) in France, the innovative choice was to invest in long programmes (more than three hours), with a strong interactivity between speaker and audience, conducted by personalities who express their opinion very clearly. Being able to express one's opinion publicly is today a fundamental element for the notoriety of the programme and the radio, and therefore for creating an audience. RMC is an essentially talk radio station, entirely dedicated to information (news and sport). Since the presenters have started to express their opinion on current affairs, always of course respecting the audience's views, the station's audience has increased. In this sense, RMC introduces into the editorial narrative an element that is fundamental in the functioning of the network, where the expression of opinions is the rule. Long programmes also allow the radio station to make cost savings because the same staff of operators, technicians and presenters stay on the air for longer, which allows important savings in the medium term.

On the contrary, RNE in Spain is focusing on brevity, coming from a tradition of very long programmes-containers, especially in the mornings and evenings. Programming is migrating towards a schedule of very specific one-hour programmes, in which

> at every hour change the station changes atmosphere, tone of voice, perspective on the news and the topic of the day [JHB].

Change is never easy: one is afraid of losing what one has, one is afraid that the audience that loves or lives with the medium will not understand the meaning of some transformation, such as the removal of a much-loved presenter. But innovation is also the ability to broaden the audience when looking for a wider target audience than the hard core that follows a programme assiduously. And in any case, if the storytelling is well done, the audience will understand it without any problem.

ArteRadio, also in France, has made its programming a menu with over two thousand programmes to choose from. It does not therefore propose a linear and live listening of its programming, which in theory a web radio could do, but leaves it to the user to make his or her own choice. In the Radio catalogue, the content stands out for being strongly influenced by social networks in its rhythm and grammar. TikTok and Instagram offer extremely short video sessions and it is well known that content that does not arouse the user's interest within 6 seconds of its beginning is discarded and replaced with the next one. Rich in this lesson, ArteRadio has for some time now been proposing dramas edited at an extremely fast pace. The *Klaire Fait Grr* series proposes dramas ranging from 3 to 40 minutes in length. The pace is very fast: some episodes of the series consist of more than 25 different sequences (speech, music, sound) in three minutes.

A challenge that concerns both innovation and the independence of the Public Service Media is undoubtedly that of "detecting and identifying fake news" [MR]. With linear news programming, the PSM must be like a filter for the public and raise the level of journalistic competence. This issue was pointed out by many interviewees.

Podcasts

All the executives interviewed, when asked "What are the main innovations in Radio in recent years?" answered: "Podcasts". Podcasts reinforce the nature of Radio because their basic ingredient is voice, but at the same time they reassure and quickly create their own audience because they are like Radio. The primary driver of this innovation, however, could not be the Radio operators because they were and still are under the pressure of competition and live broadcasting. For this reason, their room for manoeuvre in the direction of innovation is limited, because they have to maintain their market shares. Podcasts arrived on the initiative of external Radio operators,[3] compared to which they proposed complementary and innovative formats and content. Quickly, public operators and later, but to a lesser extent, private ones, tried to integrate this new world into their editorial strategies. Over the past seventeen years, podcasts have become a driving force behind the evolution of radio forms, thanks also to the professionalism, personalities and brands of radio stations. Our sample confirms that the podcast (native and non-native) has become an indispensable form of audio expression for all to win over young audiences. This is a strategy that also entails great difficulties because it requires a lowering of the average age of the workforce, in Radio editorial offices traditionally meant for a more adult/senior audience.

Podcasts have exploded and invigorated the sense of Radio, creating something very different.

> I think that history has evolved into very different sound formats, but I think that this transformation has something that remains intact in all of these changes, and that is our aspiration to move and inspire (...) For me, the podcast has its own grammar that is different from Radio, but its grammar is tremendously malleable. The omnivorous nature of the format facilitates its presence in almost every relevant sector of our society, because you have podcasts about health, music, art, sports, education, journalism, with a lot of brands. This is a very different world from traditional radio [MJE].

Thus, the path taken by many European media companies has been that of diversification through a combined offer of replay podcasts (initially in the majority) and of native podcasts, in which the thematic approach is each time extremely niche, even on very complex and divisive topics – disability, mental health, suicide – which are not easy to deal with in a linear programme. PSM can afford to be daring in this respect, finding resources to experiment and make content that is not tied to ratings:

> establishing a minimum that acts as a bellwether, to assess month by month how many people try to listen to the most innovative proposals [GD].

The interviews show that the choice in many cases was to maximise the offering of native podcasts to reach mainly – but not exclusively – a different audience than the radio audience. In Rai, for example,

> intercepting a young audience that listens to the news is the goal of many podcasts. The podcast revitalises investigative journalism, which is a useful tool for hooking more digital audiences, younger than the target audience of a Public Service news radio station, but which is also great for linear radio [AV].

This awareness stems from the observation of how younger target groups have approached the aural narration of information:

> Twenty-year-old people used the podcast in the pandemic as a big collective diary. That has now become the way they access information, but it is also a world in which they are a bit of an actor, not just a spectator. For radio stations it is a wonderful challenge to know that there is this privileged channel, we want to be contaminated, but without forgetting that we must remain pure with respect to the objectives of completeness, relevance and quality of the product [IS].

In 2018, Radio France launched a "Podcast Bar", a place where the podcast production managers of the seven radio networks meet every month to exchange ideas, projects, sound sources, distribution plans, marketing strategies and all useful information to encourage and rationalise podcast production. In addition, a specific structure has been created to accommodate external authors and projects that can later also be transformed, for linear broadcasting in the network's schedule. The same project can thus give rise to two pieces of content that are broadcast and enjoyed differently. In the production phase, the on-demand dimension is taken very seriously. During the group's orchestral recordings, for instance, certain musical sequences may be repeated or recorded separately depending on the podcasts to be subsequently produced.

RNE (Radio Nacional de España) in 2017 chose to enhance the original podcast with the *Solo en podcast* platform[4]

> to propose a completely different offer in terms of topics and especially narratives, and to make them occupy different spaces from traditional programming. But also, to accustom the audience to another way of telling and listening to radio in a subtle way [JHB].

Among the most thematically innovative examples there are: *Mi vida es un cliffhanger*, a humorous podcast on the life of a Tv series-addicted journalist that ultimately proves to be an unconventional critique of Tv series and their scripts; *Soy mujer... soy autista*, life stories of autistic women told in the first person; and *Vivir para contarla*, a podcast about persecuted women journalists in Latin America.

Like Rai,[5] Radio France also published its first podcasts in 2005 and since 2010 has launched the publication of two categories of podcasts: replays of radio programmes, to retain the audiences of its seven networks,[6] and native fiction, music and current affairs podcasts to attract new listeners. The former, as we know, are made and conducted by established sound professionals and have the notoriety of the brand that proposes them (the Radio); the latter are generally, but not necessarily, well-made, rarely conducted by personalities and published by less well-known publishers than the Radio brand. In the Top 30 most listened to podcasts in France (June 2021), only one is produced by an independent publisher (not Radio).

In any case, the real driving force behind Radio France's production offerings are the original podcasts, to which the group has dedicated specific means and human resources: the example that is highlighted is *Oli*, a fiction podcast for children (5-7 years old) created in 2018, which lasts about 10 minutes and has enjoyed excellent success. The idea of focusing on children is functional to the distance of very young listeners from Radio. Graham Dixon, speaking about the creation of thematic channels, advised against the idea of making a linear DAB channel dedicated to children:

> No child will tune in by appointment. But will instead listen to something on-demand [GD].

In Denmark, DR is pushing podcasts by focusing on a few main subject areas: a daily news podcast (inspired by the NYT's *Daily*, but with a more personal and narrative touch, thanks to a focus on the presenter's personality); a hit podcast on UFOs, which began in Linear Radio with short stories in six episodes, and is now only broadcast on-demand; a podcast entitled 'Adult Heart Problems', based on a Tv show that aired fifteen years ago (whole segments of archive episodes were filmed, with the same host from back then analysing what has changed in fifteen years); and an urban music podcast with two very young hosts.

> Now it is really one of our strengths to publish documentary series or more personal stories [TGH].

On the private publishers' side, Spain with Prisa Audio offers a good example of positioning itself in the world of podcasts, a few years ahead of other European markets, which probably stimulated an important reflection also in the Spanish Public Service. In fact, Prisa is the group that controls *El Pais* and some of Spain's main private radio stations (Cadena SER, Los 40) and that in 2016 launched Podium Podcast, a free platform with a rich offering of on-demand content that has climbed the charts in recent years. *El Gran Apagon* is currently the most successful title with more than 6 million downloads. It is a fiction podcast, the story of an atmospheric event of extraordinary force that knocks out all satellites and most electrical systems, leaving the planet in complete darkness.

> It is like recovering the tradition of radio drama, but with a contemporary narrative [MJE].

Solaris, the podcast for understanding the 21st century, has now reached three seasons of six episodes each, and explains the era we live in using a different concept each time. For example: quantum computing, life on Mars, platforms, big data, etc. The co-host is a synthetic voice, the host is a science journalist. It is a very popular podcast in Spain and Latin America, with a global concept, of which Prisa sells the rights for translation into other languages.

French private radio stations (RTL, Europe1) also offer replay and original content: in particular, Europe 1 has chosen a freemium model for the podcast of Christophe Hondelatte's daily crime programme. On air at 2 pm, it is offered for free as early as 6 am and for a fee the day before on Apple Podcasts, along with archive and bonus content.

The innovation for the Swiss Public Service networks, on the on-demand programming front, lies in the offer of news podcasts with three series aimed at young audiences, broadcast only on social networks and not in the networks' schedules, but available in the apps. *Le Short*, fast news from Monday to Friday, lasts three minutes and is commented by a personality, in a clear and concise formula with a hint of irony and with fast but quality editing, broadcast only on WhatsApp. *Le Point J*, produced Monday to Thursday, offers an in-depth look at a topical issue in 10 minutes (the project team consists of three full-time staff members); finally, *Le Rencard* (the appointment) is a weekly deep dive with video content. Among other things, RTS produces a podcast series entitled *Sur les pas*, about the lives of VIPs, who are interviewed as they walk through the places where they have lived.

Influence of new listening devices

"I think the radio of the 21st century is obviously the smartphone", said Maria Jesus Espinosa, director of Podium Podcast and Prisa Audio, in her interview. Yet, much of the experimentation and innovation of broadcasters and publishers working on the sound side is focusing on designing the content and listening experience through smart devices.

In 2017, Radio France President Mathieu Gallet and the entire management staff made a trip to California to meet with GAFA, who were launching the first smart speakers, and outline the Public Radio group's strategy in the years to come. In France, the Public Service was the first to develop smart speaker skills. For those responsible for the development of the new listening modes and the connected car, the medium has not changed the grammar of radio language, but the new listening modes have required a breakdown and reconfiguration of content.

Here are two examples: the first concerns the French Public Service's All News, France Info (daily audience of 4.5 million, April-June 2021), which broadcasts a programme entitled "*La question de France Info*" several times a day. France Info listeners with Google Home or Alexa can listen to this programme whenever they want. They simply activate *La question de France Info,* at which point a journalist from the station asks, for example: "Is it true that the Irish prime minister has been infected with Covid?" The listener answers yes or no and the journalist develops a short (30-60 seconds) story in response to the listener. In fact, in the production phase the journalist had already done a report on the Irish prime minister's contagion, which was broadcast in one of the station's GRs, and only later, when the material was ready, did he record the question for the smart speakers. Seven France Info journalists, on as many topics, participate in this production for radio listeners in possession of smart speakers.

The second example is for children. Radio France, noting the strong correlation between smart speaker owners and the presence of children in the home, proposes a series of children's podcasts announced by a presenter. The child chooses the podcast he or she wants to listen to by saying yes or no: in the first case, the title is launched, in the second, the next title is proposed. This application is called "break with sounds" (*Récré à Sons* – "Alexa, lance la Récré à Sons").[7] In both cases – *La question de France Info* and *Récré à Sons*

– the production of content designed for interactive fruition follows the canonical steps for linear fruition or the podcast and then adds the necessary text fragments so listeners can participate and listen to what they want, when they want.

The set of possibilities developed by the Spanish RTVE to facilitate the consumption of content via smart speaker is called *Experiencias de voz* and the most popular commands bring up the Eurovision Song Contest, Radio 5 (the Spanish all news broadcaster), the news, cooking recipes, and *Los Cuentos de Clan* (bedtime stories for children). From the link[8] the listener can subscribe to the apps for their smart device, Alexa or Google Home.

From a major podcast player like Podium, the reflection that emerges is to pay attention to the specificities of the contents and their relationship with the listening modes. For a podcast, in fact,

> the most suitable dimension for effective listening is the intimate and individual dimension of headphones (or car). The smart speaker, like the classic loudspeaker, fails to create that bubble of sound that is so well suited to the crafted sound of the investigative, documentary or fiction podcast [MJE].

The Swedish Public Service has an interesting perspective which identifies vocal interaction with content as the territory in which to innovate freely, completely free of dominant traditions and stakeholders:

> Voice is a dimension in which there is total freedom of experimentation, speed of updating, revision, transformation of functionalities, thanks to the fact that there is no tradition, there are no dominant stakeholders, there is no past to demolish and rebuild. There is only the future [TG].

Radiovision

Video has entered the radio sphere at different levels in Europe. In Italy and Belgium, it has been adopted by major radio stations for years, creating new forms and languages. The result is a perfectly usable editorial product in sound form, while the video version is no longer either filmed radio or television, but an original product. France and Switzerland, on the other hand, have adopted video much more timidly, as have Denmark, Sweden, Germany and Spain. These are radically opposite approaches, where video is part of the promotional identity of certain channels, but not an essential component of them.

Radio Rai, for example, starting from a process of radical technological innovation in its production chain and infrastructure, has transformed its entertainment channel – Rai Radio 2 – into a multiplatform radio that can be seen and heard from any device. In fact, its promotion on the RaiPlay video fruition platform has proved to be of great appeal to the video native audience and has led it to be among the first television channels enjoyed by the app audience.

As stated by Rai Radio 2 director Paola Marchesini:

> we brought the immediacy and interaction typical of radio to Tv, developing natively cross-media formats that exploit the broadcast infrastructure as a key asset. Live coverage is a very important element. It is one of the secrets of radio: in a world of individuality, it creates connections at the push of a button [PM].

In addition, since 2019 one of the station's programmes, "Radio 2 Social Club", with guests, live music and comedy sketches, has also been aired in an especially post-produced version on the Rai 2 television network, with interesting ratings results.

In France, private and public broadcasters have recently embarked on a hybrid radio and television broadcasting strategy, mainly for economic reasons. France Télévisions launched France InfoTv in 2016, thus benefiting from the notoriety of the Radio of the same name, which was created in 1987 and became an example for all European all-news radio stations. Although the two networks have separate editorial offices, they actively collaborate and broadcast several programmes live every day. France Bleu, a network of 44 local radio stations, started in 2020 to broadcast its morning shows (6:00-9:00) in the schedules of France 3's local television stations, which previously broadcast cartoons. Today, 19 of the 44 radio stations broadcast their audio content on France Télévisions' local television stations. In that case, the Radio programme does not undergo any changes, except for the creation of studios suitable for a Tv recording and the presence of an additional Tv operator. The experience is positive in several respects: a far more motivated Radio staff, increasing Radio audience and stable Tv audience. Within two years, all the morning shows of France Bleu's 44 radio stations will be broadcast on France 3. The possibility of extending the experience to other time slots is being studied, for late afternoon news programmes.

RTL[9] broadcasts the morning programme (9:30 a.m. to 12:00 p.m.) – with a high audience share and notoriety because it is hosted by a particularly qualified personality – on the M6 Tv network with a minimalist but effective video style. Here too, results have been excellent in terms of radio and Tv audience. The Public Service of the German-speaking part of Switzerland (SRF) has adopted the same strategy as RTL for its morning programmes. The French commercial group Altice (five television and two radio stations) has been broadcasting BFM Business (All News economic), a hybrid radio and television product, for five years. As of autumn 2021, the programming of the French-Monegasque generalist radio station RMC (Radio Monte-Carlo, daily audience of approx. 3.2 million) will be broadcast from 6 a.m. to 3 p.m. on the group's DTT television network (RMC Story).

Thus, unlike Italy where RTL102.5 or Rai Radio 2 create an original and in many ways innovative 'Radio-video' product, in France the Radio-Tv marriage is an adaptation of the Radio product to a Tv broadcast. The French strategy is driven by the search for economies of scale, rather than the creation of an original product.

The boldest initiative in this regard was taken by the Belgian RTBF. On 20 September 2020, *Pure*, the group's pop radio format, and the television network *La Deux* (a network dedicated to dramas, documentaries and programmes for young people) merged their schedules to create a new brand, TIPIK, which replaced the two historical brands. TIPIK is a brand that offers a consistent audio, video and Internet programme schedule dedicated to Generation Y (25-39 years). Only the morning part and the schedule after 9 pm are common to Radio and Television. For the rest of the day, radio and television have a different schedule. Early surveys show a stable Radio and Tv audience compared to the pre-merger period (share around 4%). The group management is aware that the concept needs to be refined in the coming months to create a coherent editorial product, as well as an appealing brand.

Cross-media experiences

When offering on-demand content in Denmark, the Public Service experimented with cross-media in several ways. First, by choosing Tv hosts as podcast hosts to tell their stories: specifically, a Danish reality star, with a past as a soldier in Afghanistan, had to figure out what to do with his life when he turned 30. The product started as a podcast and then became a series of short documentaries for the web. In another case, the making of some podcasts in radio studios equipped with cameras was broadcast on YouTube (and not on traditional Tv!). Finally, in 2018 a programme project was started by bringing together three very close-knit but specialised journalists in different fields (a web journalist, a Tv documentary maker and a radio documentary maker). The research and writing work was done together, then each produced their own content (a podcast, a television documentary and some web videos), with very positive feedback from all media. However, it is difficult to predict the outcome beforehand and difficult to replicate this production model:

> We tried to do it again and it didn't work, so sometimes you're just lucky that people work together like that [TGH].

Certainly, the strategic innovation that emerges from these experiences draws attention to the need to organise work teams that not only cover different competencies but also have a strong personal and professional fit.

As the experience of Radio Rai also confirms, the transition to cross-media driven by the technological investment in radio studios – which have been equipped with a total of 40 4k cameras, 140 km of LED walls and 200 LED projectors – brings with it a necessary transformation of the production process:

> The very approach, the way of interpreting Radio has changed. Radio is no longer just Radio, but it is on all possible media, including visual media (...) People's DNA has also changed, because you couldn't make a product that is distributed on these

> media if you hadn't also changed your mindset and the way you work. It's Radio, but with a different approach to what it was before. When you're in the studio you don't just listen through headphones, you also see the behaviour, you suggest movements, positioning. There is a multi-platform vision that brings all possible souls together and creates product [RS].

3.2.2. Production technologies and processes

In recent years many media companies, especially those of the Public Service, which are characterised by a high number of professionals compared to private operators, have overhauled their production processes. In the case of Denmark and Switzerland, the aim has been to abandon the traditional vertical directorates (Radio, Tv and Web) in favour of transversal directorates organised thematically, by programme genre or content type. The implementation of this project is however very complex because often the professional realities and specificities of the three media make adopting the new structure take longer than expected. And this happens even though technology today allows a journalist to produce a multimedia report almost in real time.

For example, in the Public Service of French-speaking Switzerland (RTS), two major directorates were created in 2010: 'Information and Sport' and 'Society and Culture' (which included music for Radio). But at present, the project is still in a transitional phase with separate Tv, Radio and Web editorial offices, which nevertheless work together. The journalist who produces content in the studio for an in-depth report only produces for one medium. If, on the other hand, the same person produces for all three media then the three editorial offices pool their work. RTS by law cannot broadcast its own original content on the web, but only takes over content already broadcast by Radio and Tv. In 2025, the Radio, Tv and Web editorial offices will move to a single location near Lausanne. This will allow economies in infrastructure but also in the number of employees. The medium-term goal is to merge the three editorial offices. On a professional level, each journalist should have the skills to produce different reports for Radio, Tv and Web. It is therefore not a question of producing one single service for the three media, which is a very different purpose. Meanwhile, current experience shows that creativity has increased and improved within the team working for the three platforms. New ideas, which generally come from social networks, are discussed and used by the professionals producing for radio and television. Social is also a source of images and information for all editorial staff.

The Radio Director of the public SRF (German-speaking Switzerland) confirms the French experience. A vertical structure, by programme genre, is useful to produce news or current affairs programmes, for the management of foreign correspondents and, to a certain extent, for the production of fiction. For the other programme genres, the specificity of the two main media is such that vertical directions lose their effectiveness.

Radio generally produces all its programmes live, but this is not the case for television. Moreover, initial experience has shown that, in a single multimedia direction, Radio quickly becomes the 'poor little sister' of television. The initial rigid reform, in a vertical sense by programme genre, was questioned on several occasions, without, however, concealing the positive aspects and effects on the economic and operational level.

SRF has set up a permanent working group (Audio-Lab), consisting of journalists, producers and software developers, to reflect on the influence of content and web services on programmes. The group is currently working on two main topics: how to produce programmes that are easily accessible live and deferred (i.e., to produce programming that allows the listener to switch between live and pre-recorded while listening to the same programme); and the functionality of apps, which are now considered to be the central gateway for accessing content.

From the point of view of technologies, media, devices and production software, there are many experiences of innovation. Let us start with the most recent and well-known case in the European context: the Swedish Public Service, which, as mentioned earlier, won the EBU Technology & Innovation Award 2021. This is a new approach to powering the algorithm used to generate news playlists on SR's app. The 'News Values' project ensures that listeners get the most important news of the day, while also finding articles that surprise them and broaden their knowledge and perspectives. From a production point of view, this innovation requires a different production approach by the news desks:

> When we introduced the app, we realised that to personalise the news feeds we had to adopt a system of value classification of services and news, coordinating the twenty-five local desks and the national desk. Each news and service are associated with a 'quality' stamp. "How newsworthy is it? How topical is it? How long will this news live?" and that sort of thing, so that there is a ranking for all news, also in relation to where it is relevant. In the long run, this system guarantees the effect we are looking for: pushing news to people who have customised their offerings and are looking for what is most relevant to them (in relation to geographical location and interests) [TG].

This is how a technological innovation has a strong impact on production. Moreover, as Judy Parnall, president of the EBU technical committee, pointed out:

> this is a perfect example of technical ingenuity combined with Public Service values, which helps Sveriges Radio better fulfil its mission.[10]

About technological and production innovation, the experience of the last four years of Radio Rai testifies to a radical transformation of the studios and infrastructures in a digital and visual sense, which puts broadcasting operators in a position to propose radio and television offerings for the whole company, at a much lower cost than television itself.

> Our studios are now basically Tv studios, with great sound quality compared to traditional Tv studios that have sets. It is a light, modern production model, much leaner and therefore much cheaper than traditional Tv studios [RS].

For radio, the offering has increased – 12 live radio channels 24 hours a day – but there has been a simultaneous reduction in production costs. The heavy investments in technology have allowed:

> an exponential growth in supply with a reduction in the budget, therefore a very strong optimisation, which is even less than what we could do if we had the opportunity to build a drier, more technologically advanced team [RS].

Another example of important technological innovation, now dated but still relevant for its productive aspects and for the stimulus given to other Public Services, was the Next Generation Radio implemented in 2017, which enabled SR's Swedish journalists to run an entire live show from a mobile station with a tablet or smartphone:

> A very small device to carry in your bag or backpack, with 3 or 4 SIM card slots that can be used simultaneously to achieve the necessary bandwidth to broadcast live in high quality without interference, from anywhere and on the move [TG].

Finally, also in Sweden, a recent innovation in programme production should be noted, which consists of a more agile procedure to get live callers (listeners or guests) to participate via a clickable link via text message, which, by using the network, benefits from a considerable improvement in quality compared to the telephone line.

Many technological innovations in the field of production concern some aspects of voice recognition and automatic transcription, both for archival research and automatic translation of content. In the latter case, EBU has developed EuroVOX, a tool to reduce the cost and complexity of transcription and translation of multilingual content, available to all EBU members. It can facilitate archive searches through automatic transcription, but is also a quick way to automatically translate news produced in multiple languages, as well as to create subtitles for live content, including alternative languages. There is also a particular focus in Switzerland on the aspect of archival research in audio libraries, as reported by Graham Dixon:

> Let's take an example: when was the word 'Brexit' used in a BBC interview? With audio archives it is very difficult to find out. Instead, being able to catalogue the archive in such detail can give extraordinary opportunities (...) One of the 'sad' things about radio archives, which makes them so different from a library where you can go and look for a book, is the absence of a visual, tangible dimension to allow direct access to the content you are looking for [GD].

The software house NETIA, whose commercial product is adopted by many public and private radio stations in Europe, also worked on the archive. RTL in France reports that the latest version of the NETIA software allows very easy access to the radio station's sound archives. The production of news programmes (politics, economics, culture) is richer precisely because the use of statements or archival sound documents is more frequent, with greater 'putting into perspective' of the information proposed to the listener. Producers, journalists, and presenters thus work in synergy but also with greater independence, because the production possibilities and easier circulation of information and documents are both enhanced. In the end, the production process becomes a joint co-creation.

'Archive for the Future', carried out by the Dutch broadcaster VPRO, is an interesting research project completely dedicated to the enhancement of archives. The work, which is currently still in the development phase, aims not only to offer viewers the widest and most comprehensive catalogue possible, but also to optimise archival practices through the support of artificial intelligence and Machine Learning, with a view to progressively improving the connection between the various collected products in the long term. The aim is to expand the accessibility of the broadcaster's historical products, all offered at the highest possible resolution and quality, while at the same time enhancing their cultural qualities and documentary peculiarities. Developed in cooperation with the Netherlands Institute for Sound and Vision, 'Archive for the Future' was launched in 2022.

Finally, ArteRadio experiments with the production of fiction in quadraphony, which evidently allows a greater capacity for expression. The difficulty and limitation of this choice lies in the reception, which requires a device with four speakers, a type that is not very widespread.

3.2.3. Diffusion and distribution

Smartphone applications

Radios' application policy becomes central to their programme distribution strategy. The general trend of operators with several Radio networks is to develop a single application for all their audio content. This is a strategy in contradiction with the past, where each Radio had its own application, often with specific colours and logos precisely to give value to brands. A user could thus listen to two different radio stations without knowing that they belonged to the same group. In his BBC Sounds launch speech, BBC Director General Tony Hall called it

> A self-contained destination that brings the best of everything we do in audio into one place.[11]

This is an embodiment of the 'stickiness' model highlighted by US academic Henry Jenkins:

> What is notable in the shift from iPlayer to BBC Sounds is a blurring of content, because while 'podcasts' are a section, one has to explore further to see if this is bespoke content or has already been on the radio. When examining genre categories, all these delineations between competing forms of content are invisible to the listener, with podcast-only content and radio content having the same status. Our attention is drawn to the content, not to the names of the radio stations.

In France, Radio listening via IP protocol accounted for 15% of the daily detected reach in 2020, i.e., 8 million people (20% if we consider 13-19 year-olds). Radio France, which has seven different applications, will soon launch a single app for all Radio stations, with the podcast offering of the entire initial group, and only while browsing will it propose access to the seven networks for live listening. The Dutch multinational Altice (two national radio stations and five television networks) already offers a single app for access to all the group's radio and television stations. The same choice was also made some time ago in Denmark, as better reported below. The choice of the Danish Public Service testifies to a commitment to improving the listening experience of its on-demand content and to encouraging the user to explore all the content and potential of the app.

It is interesting to note the design and development method by which the Dutch Public Service NPO – to cope with the progressive shift from linear audio listening to streaming consumption that is taking place in the Netherlands – implemented a new proprietary app, following Google's dual-track start-up model, with the formation of two autonomous, distinct and multidisciplinary working groups. EBU's Radio Innovation Fund[12] states that the design of the two preliminary apps, completed within five days, not only involved DJs, producers, data experts and managers, but also relied on feedback from an audience already accustomed to digital listening, thanks to which the two groups came to initial conclusions. These highlighted how a clear, uncluttered design that does not conflate on-demand audio and live radio on the same screen helps users with content selection, and how customisation of genres and playlists should follow the patterns of favourite content selection that already exist in a multitude of apps, to make the function intuitive for the user. The unique and final pilot of this new app, which was realised at the end of the five-day period, considered the need to make content usable on the go, and reduced the relevant programming to just NPO Radio 1, the most-watched station in the group. Therefore, the design adopted large, convenient buttons for use while driving, while the algorithm for proposing new content was set to always favour recent news, placed at the top of the personal screen offered to the user. During the subsequent large-scale test phase – which involved 400 iOS users (67% men, almost half in the 61+ age bracket) for six weeks – it emerged that a large proportion of users prefer to listen to national news (followed by political information, opinions, and foreign news), and that the audience's information update also takes place late in the evening, as well as on the move. The use of the app, on average between 1 and 3 times a week, also showed that 60 percent of started listening was completed, and revealed a general unpopularity of the 'like' function, used only 29 times. Few intensive users were registered on a weekly basis. Furthermore, 70 percent of the users did not experience any changes in their listening behaviour, and only 25 percent of the testers stated that they had increased the amount of content they listened to or changed their listening modes and genres. On the other hand, no one claimed to have listened less than usual to NPO Radio 1 programmes, a circumstance that may suggest that the use of apps can foster audience loyalty. In this regard, the authors of the report[13] suggest the use of push notifications and newsletters to prompt the user to open the app, while testers expressed the need to see the last minute of content listened to to be able to resume it later. The primary need that emerges, however, is to be able to draw as accurate data from users as possible, to make the content customisation system efficient.

The app of the German SWR is also a very innovative product, which allows a totally customised, 'skippable' experience (i.e. it allows one to avoid a message or content by skipping it and moving on) completely designed around the user. It is a product designed for the younger target group. In the app one can go back on the live broadcast up to five hours earlier. Listeners always start with the same content when they click play, but then interact with other elements, songs, programme pieces. Thus, the user does not perceive discontinuity and feels less of a need to switch to another type of app or another broadcaster. Its total flexibility required a great deal of agreement and rights management with various parties because it goes far beyond traditional linear radio. In addition, the metadata system has been completely overhauled and is also a major technological change, as specific support is needed to support an output stream of live metadata.[14]

> I think metadata is still not appreciated as much as it should be; therefore, there should be even more attention paid to it, because if the most popular streaming services are more powerful, it is because they have the appropriate metadata with which they can build their AI models [DF].

Sveriges Radio recently found that their app is well distributed but mainly used to listen to certain programmes. Many people use it every day, of course, but many users tune in for very specific reasons, e.g., to listen to the typical summer programme (*Sommer i* P1, Summer on P1), which does very high numbers with 10% of users connected via the app.

> What we would like is to see the app become a destination for everyday use, so those who come to it for a specific reason get used to using it every day. To do this we need to make some changes, but without risking disturbing and perhaps losing the audience that already uses it [TG].

In response to this problem, Podium has devised innovative solutions to drive the use of the app through flagship products by providing a window of exclusivity in the app. *Estirando el chicle*, a feminist conversational podcast aimed at a very young target audience, one of the most listened to in Spain, schedules the launch of the new episode every Friday only on the app and the subsequent multi-distribution on other platforms every Sunday. During those 48 hours there are many people who download the app just to listen to the product. *El Gran Apagòn*, a very successful podcast, was first broadcast on Linear Radio in the summer schedule, but some products also take the reverse route: first launched in on-demand distribution and then broadcast on Radio.

> It is very interesting to look at these two paths, if you put a podcast on the radio, you reach a different audience that never listens to podcasts, because they are like 'technology illiterates' with respect to this phenomenon. But you still get interesting feedback [MJE].

Connected cars

Due to the increasing importance of in-car radio listening in Europe, the development of connected cars is both a source of concern and an opportunity for Radio broadcasting development. While FM gives easy and good quality access to about 15 radio stations, the connected car allows the use of an infinite number of sound sources and every radio format. The radios of the future will no longer be accessible directly to the driver, but will have to pass through the filter of the car's OS (Operating System). This will be either that of the two Silicon Valley giants (Apple's CarPlay or Android Automotive) or a proprietary OS as for BMW (iDrive) or Mercedes (MBUX). Today, as Antonio Arcidiacono (EBU Technical Director) and Francis Gauffin (former general manager of the Belgian RTBF) emphasise, direct access for the motorist to the radio offering is crucial. Therefore, meaningful structures, capable of representing the entire radio industry in a negotiation, are the only ones able to negotiate with car manufacturers and OS development companies. The EBU participates in these negotiations on behalf of the European Public Services, while it is the central structure of RadioPlayer that negotiates with the manufacturers for a privileged presence of the other consortium radios in cars in Europe.

Among the projects carried out by the EBU (and also shared in the EBU SP Platform Group) in connected car services is location-based information, which adapts the audio stream to the territory the car is driving through with information on traffic, weather, places to visit, and things to do.

The German Public Service broadcaster SWR has integrated its ARD-Eventhub metadata distribution platform (live metadata system) with DTS AutoStage in partnership with the company Xperi (a leader in in-car entertainment system technology), offering an immersive in-vehicle listening experience through a single hybrid (web and DAB+) connected radio solution. Thanks to the interaction of metadata on the car's display, sound stream information is updated and integrated between the two systems, resulting in an enhanced visual experience. In fact, the car has already become the fourth screen and competition with online services is very high. Hence the importance of getting to know the user and adapting to the road they travel: distance, location, traffic. The objective is the dynamic generation of content together with additional services: programmes from the archives, personalised playlists, a translation service for trips abroad.

> In Germany, hybrid radio is a reality. It is not a question of innovation, it is the current state of the art. If you buy a new car in Germany you have Hybrid Radio. So when you turn on your Radio device in that car listening to a specific station, you never know the source of the broadcast stream: is it DAB, is it FM, is it IP? You don't know. And you're getting your additional information either from DAB+ or from IP because it's hybrid, it's all connected. (...) This is the result of having a good network of relationships between broadcasters and the industry [MR].

RTBF is also experimenting with geolocalisation of programme broadcasting. During DAB+ Broadcasting, it is inserting programme slots that are only broadcast in certain geographical areas (and tomorrow for specific targets). These experiments are carried out on the basis of guidelines drawn up by a working group of RadioDNS, an organisation that promotes the use of open technological standards to enable Hybrid Radio combining Broadcasting and Internet technologies.

In France, where around 2 million new cars are sold every year (all equipped with SIMs), it is expected that by the end of the decade more than half of the 38 million vehicles on the road will be connected. So, within 20 years, the entire French car fleet will be connected. In order to compete with companies, such as Spotify, that invest heavily to promote listening to their offerings on the move, Radio France's Digital Development Department is studying a programme to enhance in-car listening called 'Dashboard'. This device consists of a contact screen, a voice assistant and a connection to the smartphone to facilitate the use of the group's Drive offer. Spotify, on the other hand, has signed an exclusive agreement with the newspaper *Le Monde* to broadcast its daily podcast *'L'heure du Monde'*, which lends credibility to the information offered by the Swedish platform thanks to the newspaper's notoriety. It now offers subscribers – and not only in France – a music playlist called *Daily or Your Daily Drive*, depending on the country of reference. As is well known, the playlist puts together favourite podcasts and music, with the addition of news from other sources, and generates a sort of personal radio to listen to on the home-work journey.

Web dissemination control

Radio France is very concerned about the importance of third-party servers (mainly GAFA but not only) for the distribution of its IP content (podcasts and live programme streaming). Seventy percent of the group's content accessed via the Web passes through third-party servers. Radio France's objective is to reduce this to 50% by 2022 to guarantee the group's independence and control over its entire broadcasting network. For this reason, the group will make significant investments in the creation of proprietary servers capable of managing tens of millions of connections simultaneously 24 hours a day, 7 days a week. In parallel, it is working on the development of its own search engines to facilitate public access to its programmes (linear, podcasts or programme columns).

3.2.4. Audience surveys and dialogue with the public

All our interviewees severely criticise the current audience survey methodologies. These are generally telephone interviews (CATI) or written interviews, collected via diaries or the Internet. Data are collected and made available to radio stations in bimonthly or quarterly waves. It is difficult with this data to create a specific editorial strategy for each hour of the day or day of the week.

Criticism of the survey method also comes from the director of Radio Rai, Roberto Sergio, starting with a comparison between the data obtained by the Radio 2 channel in the CATI survey and its performance on social media and especially on the RaiPlay app, which is dedicated to television:

> On RaiPlay Rai Radio 2 is normally in fifth place of the television proposal. (...) This is proof that Rai's radio offerings has a very high qualitative value, and that TER's account [the Italian CATI survey, ed.] is not consistent with the true value of Rai's radio networks [RS].

On the other hand, private radio operators wonder how long advertising agencies will put radio in the media mixes they process on behalf of advertisers. A Swiss Radio executive talking about the current methods said: "It's as if in the morning I dress according to the weather the day before!" Nevertheless, the current system favours radio stations' notoriety, which allows for a very useful brand policy. The executives of the private radio stations of the RTL group in Belgium, not surprisingly, suggest maintaining the current system for reach measurement combined, however, with automatic measurement and the use of IP audience data for editorial strategy. They also point out that in Belgium, with the current measurement system, Radio's advertising market share of total investments is 16%. The RTBF follows with particular attention the new multi-platform audience measurement that IPSOS carries out in the Netherlands. This type of measurement allows an easy and consistent comparison of the audience of the different platforms and, above all, makes it possible to observe the migration of audiences from one platform to another. The only rational solution for the moment is to collect and process online audience data from linear programmes and podcasts. This is an imperfect strategy for the time being, because the IP share of radio listening is on average limited to less than 20% of the total audience. Swedish, but also Belgian, French and, to some extent, Swiss Radio use such data to drive their editorial strategy.

As already noted in the analysis of the transformations of the European Public Services (Chapter 2), it should be emphasised that during the pandemic emergency, radio stations further refined their ability to serve audiences, down to the most specific niches, regardless of the surveys used. Many of the content innovations we saw during Covid are innovations that affect the relationship with listeners: for example, psychology programmes – not academic but applied – developed a stronger type of interaction with the audience. Instead of that detached contact ("I am the expert, I am telling you what to think, what to do…"), a dialogue developed as the speakers listened to the audience and their problems.

> Radio has understood Covid as a real human emergency, and has done so in a flexible way, like the voice in your ear, that intimate voice, which can respond quickly, like a kind of psychological emergency response [GD].

Over the past few months, the Norwegian public broadcasting company NRK has developed two different strategies for its official applications, the aim of which is to improve and encourage interaction between the audience and the radio show. The first strategy involves the implementation of a direct channel of communication with the radio booth, realised through the addition of a special box on the programme's web page where content (text, voice messages or images) can be inserted according to the needs defined by the show on air. Subsequently, a second even more engaging function will be added, where the communication tool will be enriched with questions and/or polls that can potentially be useful as content to be used during programmes or between episodes. In addition, the listener will be given the opportunity to see others' answers after submitting his or her own. In this way, while fostering active involvement in the show, NRK hopes to avoid the risks involved in free commentary typical of social media, which is often complex to moderate on a large scale.

3.2.5. Alliances with platforms and synergies with third parties

The issue of the relationship with platforms and third parties is central to the discourses and strategies of the commercial companies and PSMs consulted during this study, regardless of the roles and areas of competence of the interviewees. They all agree that it is very complex to hold together the perspective of the user (who wants to have all content accessible and at their fingertips on whatever platform they are on) and the interest of media companies (to keep as many people as possible within their platforms, to manage data and recommendations). The balance becomes even more precarious when one considers the aims of Public Services and their being supported by public funding: public objectives and private interests are objectively very difficult to reconcile. At the same time, one realises the loss of centrality of Radio broadcasting in the transition from linear to on-demand and emphasises how it is counterproductive for Broadcasting companies (of the PSMs, in particular) to accelerate this transition, even in the knowledge that much flexibility is needed to respond to new audience behaviour.

The reflection on the role of the Public Service in the relationship with GAFA and all other third parties is very lively, as witnessed by an exchange of views within the EBU Strategy Community group.[15] From the Dutch Public Service, Thomas Schippers, Director Organisation and Video Strategy, reports how

> research on attribution and evaluation shows that NPO offerings on third platforms are mainly attributed by the public to the platforms in question (YouTube, Facebook, Snapchat, etc.) and not to the public broadcaster. Our commercial competitors therefore mainly benefit from our activities on these platforms [TS].

And they do so from a dominant position, in which they dictate essentially non-negotiable conditions, which are therefore unacceptable to the Public Services. They share only partially the data collected through the contents of the PSMs and do not guarantee a correct positioning of what is distributed by them.

From Schippers' reflections and E.N. Martin's research,[16] we take up a still topical alert regarding the risk of loss of legitimacy of PSM as dedicated instruments of deliberative democracy distinct from commercial actors. It is important not to lose sight of the values that have made public broadcasting companies trustworthy and legitimate over time. For instance, the insights provided by Schippers' testimony to Public Services are very timely:

- Build strong and secure public platforms and make them available to all citizens. Universality no longer means 'be wherever your audience is', but 'make your services available and attractive to all audiences';
- Use third-party platforms for targeted promotion of the public offer to specific target groups. Serve them an amuse-bouche (starter) there, but afterwards let them dine on your platform;
- Condition 1: an excellent, attractive, relevant and distinctive offer is essential. There is simply too much to choose from; mediocrity will be punished mercilessly;
- Condition 2: our portals and services must meet the public's expectations in terms of usability, accessibility and technology. Scaling up and cooperation between public broadcasters, either through shared technology or jointly negotiating with technical providers (equally Big Tech!), should therefore be at the top of our agendas [TS].

Few companies, private or Public Service, chose a path of total openness[17] or closure. Most of those consulted have opted for a solution of shifting balance, worked out on a case-by-case basis by choosing which content to make accessible for each service (top podcasts; some episodes of a series) and which to keep for themselves only on proprietary apps and with what timing (exclusivity window). Many have hinted that there will be changes in either direction in the coming months, towards more openness (as with the German SWR) or closure (as with Danish Public Radio). At the same time, experts expect a forthcoming enhancement of the promotion capacity of proprietary platforms, which have on their side many advantages in terms of content, organisation and profiling possibilities.

RTBF, for example, signed an agreement to broadcast its radio stations and podcasts on Spotify, with the podcasts available on the Swedish giant's platform only for a week after publication and then exclusively on RTBF's proprietary app. The presence on platforms such as Spotify is considered indispensable for RTBF because it allows it to reach an audience that does not normally listen to radio. The Belgian Public Service admits the difficulties in negotiating agreements with more powerful platforms (such as YouTube).

ArteRadio is present on YouTube, with a channel where it publishes its programmes (the sound is matched by a still image with the radio logo), but with subtitles in French and English. The audience is younger than usual and tends to interact by commenting on both the themes and the style and language of the programmes. ArteRadio also offers its programmes to other platforms, some of which charge a fee (€0.80 per episode) such as Sybel. Podium, for its part, chooses for some products the path of the exclusivity window in the first few days after publication.

In contrast to neighbouring Denmark, the Swedish Public Service has decades of experience in developing a so-called 'Open API' approach. Application Programming Interface refers to the set of functions and procedures that allow an application to access the functionality, data and audience of other applications. This approach implies total openness and usability of the content distributed by SR by third parties. Among the rules of the protocol is the obligation to clearly attribute the 'material' distributed to SR, and above all, the explicit requirement to use all material in such a way that it can be easily found. Furthermore:

> When the API is used, SR must, on request, receive anonymous user data generated using the material. This must be done in line with data security and privacy regulations.[18]

Negotiations with Apple and Spotify on API rules were complex, according to Tomas Granryd of Sveriges Radio, a staunch supporter of this approach:

> We still think it is great to have an open API, to have the audio community taking advantage of our material for free as long as we obey the rules. I do not know how it will be in the future, but today we are quite happy with the idea of the open API, so far we have seen it as an opportunity to fulfil the Public Service mandate and reach a huge audience [TG].

Furthermore, it is interesting to 'dress up' the perspective of the user, who is in fact very unaware of this approach and probably also lacks any sense of gratitude or recognition for the Public Service.

> I think listeners consider it normal that our content is where they find it, on Spotify or Apple. They see them as an open resource that should be everywhere [TG].

Third parties are not only, of course, represented by GAFA and the music streaming giants. An example of a very forward-looking agreement in the audio sector is that of Radio France with publisher Bayard (specialising in youth publishing) and the public bank Caisse des Dépos. Together they created the company *La Chouette Radio* to launch Merlin children's offerings. Currently, interested families can buy a dedicated device (produced by the French company Elipson), called Merlin, for a cost of EUR 80, which gives access to 200 podcasts of different genres: fiction, music, documentaries, yoga, current affairs, languages. Every month, some 50 new contents enrich the offerings dedicated to children between 3 and 10 years old. The Merlin device (50 hours of battery life) is connected to the network with Wi-Fi and can work online, offline or in the car. Merlin is designed to allow the user to remain in its ecosystem (*walled garden*), without being able to surf elsewhere on the net. The promoters of the project also undertake not to collect subscribers' consumption data because the editorial offer is not financed by advertising. Children's choices will therefore not be influenced by algorithms. By Christmas 2022, sales of at least 50,000 devices are expected. The economic model for the time being is free; the service is therefore financed by the purchase of the terminal (the Merlin device). In the future, a subscription of around EUR 4 per month could allow access to premium products. Later, collaboration with other publishers of audio content for children is planned, with the aim of limiting children's addiction to the screen. The promoters of the initiative in fact believe that audio is a relevant mode of communication to develop children's cognitive abilities.

Finally, the Belgian commercial network VRT, in collaboration with the Mediahuis group, is working on a system for the development of virtual voices that can give the listener the warmth, but also the dialectal inflections, timbre and tone typical of human vocality, with the aim of obviating the coldness found in artificial voices. It aims at building new voice identities that are not artificial and that can allow the listener or user of a service to pinpoint immediately the identity of the broadcaster or producer. The developers, supported by VRT's audio professionals, will provide a platform where the various nuances of voice can be tested, supported by Mediahuis employees who will provide input and feedback to help refine the research. The development phase will last six months, to be followed by two months of system fine-tuning.

3.2.6. Broadcasters' new communication strategies

The most recurring element among editorial, communicative and organisational innovations, which in turn cannot be separated from strategic innovation, is the rethinking of brand strategies with respect to the new prominence of the on-demand dimension, with the transition from the network brand to the single brand of the company/group providing the offering. This is not an easy rethinking of the relationship between listeners and linear networks, which often (not always) entails the internal reorganisation of directorates and teams within the broadcasters.

The user perspective should also be considered to rethink the traditional logics of social communication and the way the same brand is deployed in different profiles differentiated by network and medium. Already in 2019, Robin Pembrooke, Director of Content Production Work Flows at the BBC, pointed out that the differentiation between radio, Tv and digital offerings (understood as traditionally distinct categories of media) needs to be rethought with a view to a more unified platform and a different organisational and communication strategy, taking into account the fact that more and more people are consuming all types of media on all their devices, both stationary and mobile. Despite this, on the social platforms front, communication in 2019 remained highly disjointed, lacking a consolidated and common vision with respect to the number and quality of content published. In Pembrooke's words:

> I don't think we would be able to tell you how much content we post on YouTube or Facebook or Twitter every day, because we have so many different social media accounts, there are literally hundreds of people posting that content on those platforms every day.[19]

Public Service Media should therefore develop an integrated and unified brand communication strategy, avoiding excessive fragmentation. This strategy is crucial for public recognition and attribution of their brand.

In the relationship with the audience, many things change: for example, there is an attempt to push app users to discover and experience everything the company produces and not just to search for content they want to listen to again. In the first setting, the app gives top priority and visibility to on-demand content, leaving linear content less accessible:

> Linear Radio must be like the milk in the supermarket: the milk is always at the back because you know that customers come in to get that, but we make them walk all the way down the aisle so that they also buy something else. The main display of the app is dedicated to on-demand content, then we put Linear Radio in the menu and crossed our fingers. It worked well, because we didn't lose any Linear Radio listeners, in fact we gained some, but we also gained a lot more listeners for on-demand content. Here too there is a change of perspective [TGH].

At the same time, the on-demand offering has different characteristics from linear channels. Each podcast product is a world of its own. The listener has to be seduced every time a new series comes out, and this dynamic is very much in the minds of the producers:

> No listener listens because they have to. They have to stop. You must capture their attention and you have to really interest them, whether you are talking about astrophysics, love or whatever. This is achieved by combining two factors/needs: the search for new knowledge – something new that you take with you in the end – and the need to be entertained [TGH].

Returning to the listener's perspective, SWR points out a crucial element in exploiting the full potential of the technology behind the new app they designed: to make the listener understand how it works and how he or she can materially customise his or her own stream while continuing to listen to his or her radio seamlessly. The communication of this complexity comes through simple language. What helped the most was precisely explaining it on air on the Radio, illustrating the flexibility, the possibilities of choice and customisation of the stream. More than an advertising campaign, the on-air narration of the user experience was useful, sometimes even in person, at festivals and meeting occasions outside the Radio setting.

In the relationship with listeners, the innovations reported by our interviewees often concern the opportunities for contact, mobilisation and dialogue (in person or at a distance) with the public. The RTBF radio management used to hold one or two annual press conferences to communicate with the public via traditional media. This strategy was abandoned in favour of events with the public. The department dedicated to communicating with the public and journalists, which had always been called 'Communication Management', was renamed 'Communication Management and Influencers'.

Rai Radio 2's experience is that of a broadcaster that urges maximum interaction with the listener, to foster the dimension of immediacy and to prove to viewers and listeners the 'non-artificial nature of the radio product'. It is no coincidence that, among Italian radio stations, it is the one with the most interactions on social networks, as well as the first broadcaster

> to have also brought to television a programme entirely based on the cross-media interactions of listeners [PM].

In order to build and cement the relationship with the audience, both Rai Radio 2 and Rai Radio 3 organise musical events and live shows within their historical premises in Rome, because this type of contact is able to strengthen the bond with their listeners even more. At the same time,

> RaiPlay Sound is felt to be a unique opportunity to build a new relationship with the public, one that saves traditional users but gives the company the opportunity

> to intercept an audience far removed from radio, rejuvenating the image of a brand that for some generations is not relevant [EC].

Another example is the case of Sveriges Radio, which every year organises a big event around Christmas called 'Musikhjälpen' (music helps), a fundraiser for a charitable cause that lasts six days with musical guests locked in a glass studio in the centre of a town in Sweden. The musicians sleep in this 'glass cage' and make a radio programme that is also broadcast on television (in collaboration with SVT). On this occasion, the public participates by raising money and sending it to the programme:

> It is an event that unites the community, with solidarity competition between those who collect the most [TG].

This brings the focus back to an active involvement of the listener that increases his or her sense of belonging to both the country and the broadcaster.

Another participation project is 'Generation Zukunft', launched in Germany by ARD in spring 2021. Around 140 citizens self-nominated[20] online and discussed their future expectations for broadcasting in a virtual workshop. Among the questions posed by Public Service to the participants were: "What should ARD do to reach the generation of the future? Above all, how can ARD better transmit background and knowledge?" The result of this consultation, which took place in live chat between Radio members and listeners, has not yet been presented as we close this publication.

3.2.7. Recruiting, organisation and new professional skills

The need for new skills was felt by all those interviewed. Clearly, managers (generally over 40) favour the search for young, experienced staff, or in any case those with a strong feel for the Internet. Antonio Arcidiacono, EBU Technical Director, does not fail to express his vision:

> Young people understand better the needs of the audience, the functioning of the Web and the software that manages it. To work for a radio, you have to understand how the distribution network works and the new listening devices.[21]

These include smartphones, which have a memory whose capacity is constantly increasing. The radio programme maker must integrate this device function in the design and broadcasting of programmes, because part of it could be stored in the receivers.

Below are some examples of training, recruitment and recruitment policies. Managers of Public Radio stations in Switzerland are looking for all-round training (Radio, Tv, Web) for new recruits. In addition, the search for data scientists is becoming increasingly important, even if recruitment is currently low. RTS (Radio Television of French-speaking Switzerland), for example, employs 2.5 full-time staff to collect and process data from the group's radio and television stations, as does Radio Television of French-speaking Switzerland with regard to the data collected with the *Play Suisse* replay service. The SRF (German-speaking Switzerland) does not yet process live Radio and Tv audience data, but its Radio Director has recently hired four presenters who come from the YouTube universe, inexperienced in Radio but with sensitivity and skills for the social world. Influencers are also starting to be particularly sought after.

In Belgium, the RTBF tends to reduce the number of old-fashioned technicians, favouring the training of presenters and journalists capable of taking on part of the production. Public Radio gives space to young people who are attentive to the style and narrative rhythms of social networks and are then able to create a new narrative grammar for Radio. The Radio also hires graphic designers, video operators and people with specific SEO (Search Engine Optimisation) skills to facilitate the broadcasting and creation of notoriety on the Web. Furthermore, in its search for innovative technological solutions, VRT (Flemish Public Radio and television broadcaster) created Sandbox, an incubator for start-ups related to digital technologies and innovation challenges, not only in the VRT ecosystem, but also in the media industry in general.[22]

In the sample interviewed, many examples of innovation in recruiting emerged, combined with a desire to convey a different image of media companies. In this regard, Francis Goffin, who for years headed the RTBF's radio division, emphasises that the Public Service undoubtedly has a double advantage over private operators: stable financial means and more talk programmes (not in frontal competition with streaming platforms). On the other hand, it has a major drawback: its image and notoriety unfortunately do not seduce young people even when the Public Service tries to innovate. To make up for this shortcoming, Sveriges Radio has initiated Creative Lab, a weekly summer campus where young people between the ages of 16 and 25 are involved in radio activities and employed in solving concrete problems:

> We assign them a problem to solve and wait for their proposals, with the support of facilitators who help the small teams through the methodology of design thinking. It is a way to give SR the image of a welcoming and inclusive company, interested in young people (16-25 years old), their ideas, their perception of Radio and how to develop it [TG].

Finally, there is a topic very dear to the EBU that concerns the energy efficiency of broadcasting companies, achieved through a less complex design of the companies' work, infrastructure and procedures. The EBU Report[23] on sustainability places the highly energy-consuming media sector between level 1 and 2 on the rating scale developed by the Future Laboratory, where 1 refers to the application of basic, almost household rules for saving materials and energy resources (paper recycling, adjusting the switching on of lights, etc.); and 2 defines a more systematic sustainable thinking applied to the production chain. The sector's players, in essence, still appear far from applying a true 'science of sustainability' that reduces the environmental cost of the media, represented on the same rating scale by level 3. In general, the approach so far seems more oriented towards innovation and growth than towards reducing the environmental impact.[24]

The European industry already offers examples of innovation and cooperation between sectors that point to some initial viable paths. The Swiss company RTS, for example, has made one of its new buildings completely sustainable, equipping it not only with traditional solar panels and LED lighting fixtures, but also with a heat pump that uses lake water to air-condition the rooms. More interesting is the idea of placing the data servers on the ground floors of residential buildings, to reuse the heat produced by the machines to heat the flats or offices on the upper floors. The servers themselves, in turn, would have to be made more efficient by optimising the air flows used to cool them.

To summarise, we could say that every operation aimed at the efficiency of technological structures, buildings and equipment useful to the media sector must be calculated with scientific rigour through evaluation metrics also oriented towards the medium and long term. EBU suggests the importance, in environmental assessments, of the concept of Minimum Viable Product (MVP), replacing the cost reduction orientation with a focus on reducing the overall environmental impact. In practice, a company wishing to move towards an ecological transition could start with the creation of an inventory of needs (present and future) coupled with an assessment of the status of existing and emerging technologies.[25]

3.2.8. Inclusion and diversity

Inclusion policies are crucial for innovation, because nothing innovative can be born if there is no diversity in the company. It is therefore necessary to have people with different ideas, backgrounds, life experiences, to reproduce

> the atmosphere of the 'square', of bringing people with different ideas into the same space. In addition, how much does the staff of a radio organisation reflect the society it serves? Is there the same diversity of population inside and outside the company? I don't discriminate by age, but I think a person can't be over fifty and at the same time know what it's like to be twenty/twenty-five years old, understand what the presenters of youth-oriented radios should be talking about (...) I think it's important to reflect the social plurality internally, to make sure that the community inside the company corresponds to the community outside. Then the next question is how to attract the right candidates for this purpose? [GD]

3.2.9. Innovation in financial resources

A policy of innovation in financial means and optimisation of resources seems necessary almost everywhere in the companies we consulted. A figure that seems to be very significant comes from Radio France, where the digital manager is working on digital in the individual radio stations, with a dedicated budget. Main mission: to invent content for the connected public.

Another fundamentally important element, this time from Finland, is the issue of the financing of PSMs and the reform of the TV fee.[26] Here, since 2013, it has become a tax linked to everyone's personal income and levied independently of owning a television set. The scholar Marko Ala-Fossi points out how one of the most common arguments in the debate preceding the reform concerned the social acceptance of the tax on traditional TV sets, perceived as obsolete media despite their centrality in people's lives and consumption, suggesting that the Public Service Media should carry the flag of innovation to contain this kind of phenomenon.

Regarding business models, the issue of buying and selling rights for audio series also seems relevant to us. In this respect, Podium is paving the way with its South American branches.

> The maturing of the podcast market has led to the development of subject matter agreements for audio series. The ex-novo production of a series already made elsewhere allows for adaptation and the decision to use a language and accent that allows the podcast to be distributed and travelled on both sides of the ocean (this is the key to scalability). Normally, no one in Spain would listen to a Colombian radio station. Nevertheless, we listen to the podcast of Radio Ambulante even if it speaks with an accent that is very far from Castilian. Also worth mentioning is the case of Wondery (the podcast network now owned by Amazon) which offers a successful podcast, Dr Death, initially made available in 2018 in standard Spanish and Castilian, German, Mandarin, French, Portuguese and Korean [now also in Italian, ed.] [MJE].

Finally, taking the Prisa case as a starting point, if we look at the horizon of private radio, it is interesting to note how it is becoming commercially international through the expansion of radio brands beyond the national market. Internationalisation strategies mainly respond to three typologies, as highlighted by a recent study[27]: national groups with an international footprint (Prisa, the French group Lagardère Active, the Belgian group DGP); groups that are born transnational, focusing on a strong brand and an international dimension that reaches more than five countries (Bauer Media, NRJ and RTL of the Bertelsmann Group); radio franchises, which "work exclusively with the franchised brand, i.e. they do not own radio stations"[28] (paradigmatic case Virgin Radio, which is operated in different countries by different companies such as Mediaset in Italy or Lagardère Active in France). The study shows that in a deregulated market, the reinforcement of the role of brand and format and agreements between groups have enabled Radio to overcome obstacles that historically prevented its international expansion, as an oral medium with strong ties to local language communities and certain cultural characteristics. With respect to internationalisation,

> format is one of the most useful enablers because it refers to a standardisation process, which is what makes it possible to convert that content into an easily marketable product.[29]

Simultaneously, the podcast has also played its part in this process: as Martin Spinelli and Lance Dann argue in *The Audio Media Revolution,*[30]

> podcasts can thrive on niche global audiences: they are less rooted in material communities, regions and countries (an advantage and a disadvantage)

and make audio an international product by focusing on their specificity.

3.3. Integrating changes

Epoch-making changes[31]

The current changes are fundamental. Access to Connected Radio is becoming more and more dependent on some gatekeeper, not always located in Europe, who puts Radio stations in head-to-head competition with each other and with all other sources, be they sound or otherwise. However, Radio is on the move and already today, it is no longer just a content producer. A series of new skills are gradually being added to its activities, skills that will be increasingly important in audio companies: data scientists, influencers, search engine management experts, semantic search experts, and developers.

Interaction and sharing

At present, the world of information and entertainment is experiencing the interactivity revolution. Young people and young adults interact with the content disseminated by the network. They comment, express their liking (like, smiley, emoji), recommend, share. This process breaks with the traditional conception of media based on an asymmetric relationship between the medium that produces and the audience that consumes. In the future, content that is not 'enhanced' by its intended audience and that does not have a social component may encounter many difficulties. Radio is integrating this change in media 'usage'. The customisation of apps, the use of smart speakers that allow interaction with the publisher, and the dissemination of programmes on social networks will allow Radio to adapt to the media environment. The use of AI, the employment of new professionals, the integration of new skills is all part of this process.

Technical collaboration

Competition among radios has always been a reality. In the analogue world, beyond radios, there were few competitors: television (few networks), the vinyl record, the cassette tape, CDs and the press. In the last twenty years, the media ecosystem has changed profoundly. Competitors have financial means not comparable to those of individual radio stations. As a former Radio France executive suggests, Private and Public Radio could cooperate closely on a technical level, by mutualising production and broadcasting software, something that is already a reality in the EBU among Public Services. In particular, both public and commercial Radio should jointly manage the servers for the online broadcasting of programmes and podcasts. This solution would allow partial independence from the big American operators while retaining control over online distribution. Moreover, this technical collaboration would have no impact on (healthy) competition in the market or in terms of audience between the different Radio categories.

3.4. Levers of Innovation from North America

What will the radio of the future look like? What will make it unique and keep it relevant? What strategies need to be developed and implemented? According to experts, it will be able to adapt to new contexts, be accessible regardless of the chosen technology and offer users a pleasant and personalised listening experience. Above all, it will be a radio that is always in line with the values and needs of its audience and capable of offering relevant, entertaining, value-added content.

In times of uncertainty, radio has once again proven its relevance and purpose. In the year following the pandemic, surveys reported that more than 80% of North Americans listened to live radio every week. Radio is and will remain a medium that is close to its community and current events. It is essential to remain focused on this mission, despite the changes in the marketplace.

To face tech giants with enormous financial resources like YouTube, Spotify, Amazon and Apple, North American public and private radio stations have created their own digital audio service, while developing new organisational skills. But how do you maintain your place in this new environment? How do you engage the younger generation and retain the other segments of the population? How do you ensure continuity? What are the levers of innovation in the coming years that we must envision and prepare for?

Trends can be anticipated by analysing the North American audio-sound ecosystem from several angles: technological developments and their applications, content evolution, new distribution channels, business models and of course, the audience - the centre of it all.

From this forward-looking analysis, short-, medium- and long-term strategies can be developed to seize opportunities. This chapter illustrates them individually to stimulate the reader's creativity. A summary is listed below:

SUMMARY OF THE ANALYSIS AND INTERVIEWS CONDUCTED IN THE UNITED STATES AND CANADA

SEGMENTS	ACT NOW: Short-term risks/ opportunities - 2023	ESTABLISH A STRATEGY Medium-term risks/opportunities - 2025-2027	MONITOR CLOSELY Long-term risks/opportunities > 2030
	TECHNOLOGY TEC		
VOICE COMMANDS (pag. 162)	Ensuring access to our content, recognition and attribution of audio brands[32]		
AUGMENTED AND VIRTUAL REALITY - METAVERSE (pag. 163)			To establish the brand, promote or create events[33]
AUGMENTED RADIO (pag. 165)	To be added to the catalogue		
AVATARS AND VIDEO GAMES (pag. 166)			To engage younger audiences
AUDIO ROBOTS (pag. 166)			To support hosting
TRANSCRIPTION (pag. 167)		To help content discoverability	
INFOTAINMENT (pag. 167)		Building alliances and providing content	
CONNECTED CARS (pag. 167)	Ensure you are on the dashboard with big techs or aggregators		
	CONTENT CON		
CONNECTION (pag. 169)	Proximity with audience and their needs		
CELEBRITISATION (pag. 170)	Focus on celebrities to attract		
PERSONALISATION (pag. 171)	Establish recommendation strategies		
RETENTION (pag. 172)	Focus on relevance and pace		
EDITORIALISATION (pag. 172)	Give voice to the diversity of voices		

SEGMENTS	ACT NOW: Short-term risks/ opportunities - 2023	ESTABLISH A STRATEGY Medium-term risks/opportunities - 2025-2027	MONITOR CLOSELY Long-term risks/opportunities > 2030
DOMINATION (pag. 173)	Protect your DNA and niches		
PROMOTION THROUGH NARRATION (pag. 173)	Focus on storytelling		
SHOWS (pag. 175)	Design audio for branding	Referencing	
DISTRIBUTION DIS			
PUBLIC SPACES (pag. 176)	Expand reach beyond Apple, Amazon and Spotify		
RADIO SHOP (pag. 177)			Adaptable?
RECORD COMPANIES (pag. 177)			Support emerging artists
TALENT AGENCIES[34] (pag. 178)		Watch a new hosting generation	
DATA (pag. 178)	Protect personal audience data. Better understand consumer paths		
DIFFUSION[35] DIF			
BUSINESS MODELS (pag. 180)	Transition to digital	Diversification	
ALLIANCES (pag. 182)	Protect local culture ecosystem		
AUDIENCE PUB			
REPRESENTATIVENESS (pag. 184)	More voices or better engagement		

Figure 15 – elaboration by Sylvain Lafrance and Louise Hélène Paquette

Research methodology

North America can truly be an innovation lab. The United States, with its huge pool of potential listeners, has the numbers that can quickly propel new business models towards profitability, often as soon as they are introduced. Canada faces monetisation issues because of its smaller markets and two official languages. As a result, it is a fertile breeding ground for creativity.

To study the market from the perspective of future developments, we combined several approaches. First, we searched for primary data (studies) and secondary data, through scientific literature and by reviewing relevant content in the news. To identify trends, we created comparison charts of companies across different variables: adoption rates of access technologies, content, distribution and broadcast channels. We examined the demographics and behavioural evolution of the target audiences. We also considered economic, legal, regulatory, environmental and societal variables that could impact business models.

To supplement our prospective analysis, we conducted field interviews with executives, directors and craftspeople from various sectors in the radio and audio industry between April and August 2021.

3.4.1. Technology: innovation requires accessibility to maintain its reach

Technology is pushing back the boundaries and in the coming years, it will lead us to a new reality.

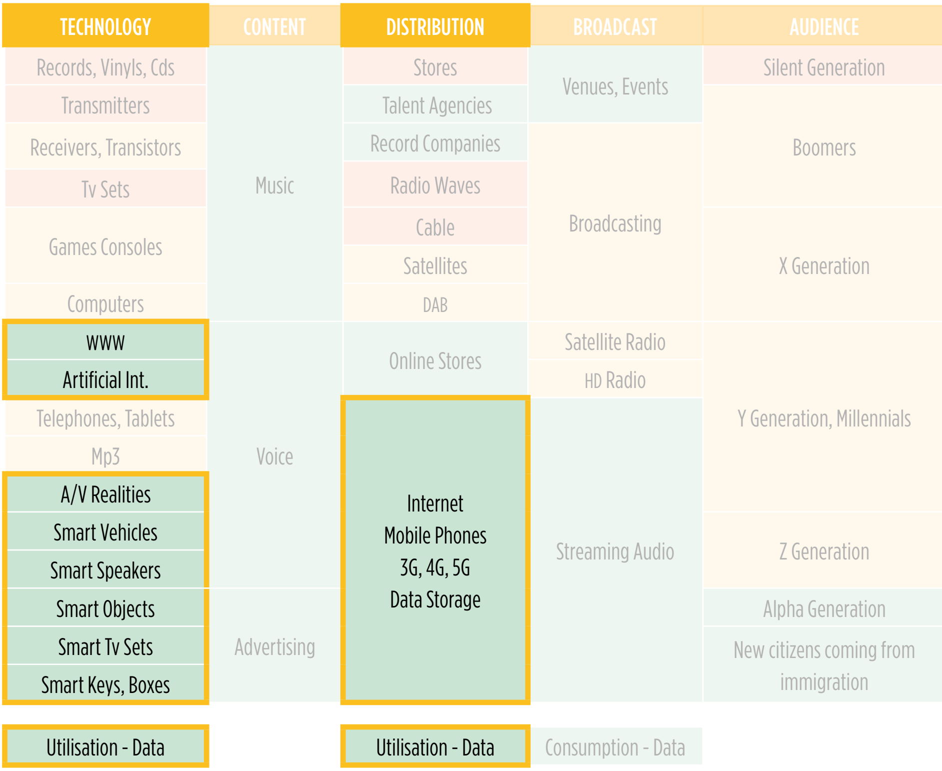
Connected objects in the home, street furniture, transportation, will soon follow the path of consumers with much greater precision while business intelligence companies further hone their expertise in analysing and interpreting the massive amounts of data.

Voiceprint and facial recognition are already replacing passwords and providing updates on our health, state of mind and physical location. As long as consumers receive some benefit, they will allow access to their personal data. A vast parallel network of data collection will develop. It will be owned by manufacturers and Internet distribution companies and be housed in the clouds of IT companies.

With the promise of faster connectivity, 5G opens the door to the metaverse, the overlapping of augmented reality with the real world. This ubiquitous computer presence promises new experiences for listeners.[36]

So, what are the opportunities for the radio and sound industry?[37]

Because of its disruptive potential, innovation in radio and audio is first considered from a technological perspective.



Legend: GROWING, DEVELOPING – SLOWING, STABILITY – DECREASING

Figure 16 – Elaboration by Sylvain Lafrance and Louise Hélène Paquette

Voice command, new audio design TEC

Voice control is revolutionising the digital landscape. New models of smart headphones were introduced at the 2019 Consumer Electronics Show in Las Vegas. Prognosticators predicted the decline of the smartphone as the technology hub and the integration of smart speakers in everyday items and home furnishings.[38]

In 2017, news media, radio stations and audio platforms developed applications (skills) to be recognisable by voice assistants. They also adjusted the protection of their audio brands from a legal standpoint. In 2020, Spotify, Pandora, TuneIn, iHeartRadio, and Amazon Music reached an agreement with Samsung to be present on the dashboard of its new smart refrigerator.

After the mitigated success of Google glasses in 2014, Apple will be launching – reportedly in 2023 – its smart glasses which rely in part on advanced voice technology. The glasses could, for example, detect whether food is fresh or spoiled and measure distances via a scanner. A built-in dashboard would be controlled through movement. Each eye would be equipped with an 8K screen and a new system of proprietary QR Codes would also allow for an easy transition into virtual or augmented reality experiences.[39] All this while respecting the privacy of the individuals encountered, states Apple…

In September 2021, Meta unveiled its first pair of connected glasses in the North American market in collaboration with Ray-Ban and French-Italian lens firm Essilor Luxottica.[40] Six months later, when it was launched in Europe, the Ray-Ban Stories can now record clips of up to 60 seconds. Three microphones are integrated to make calls or listen to music. An account is required to set the parameters of the glasses and thus, feed the Meta database.[41]

These new objects could bring about profound changes in the way we communicate, understand our environment, listen to audio, video, and even play. We can expect investments and advances in natural language processing and generation, as well as emotional recognition.[42]

These advancements create a need for brands to develop sound and vocal identities for their recognition and attribution. Audio producers know how to do this. Is this a new market to be developed?

Several industry leaders who were interviewed stated that the connection between a human and a machine requires writing in conversation mode. Writing for a vocal assistant means scriptwriting while keeping in mind the natural way that people will interact with the robot. One cannot only think of the message, but also the answers to give to the listeners. This implies having the ability to anticipate and perform user tests.

Broadcasters face the challenge of maintaining their reach on platforms owned by technology giants that can dictate their editorial priorities.

In an interview, Caroline Jamet, Executive Director of Radio and Audio and Natacha Mercure, Senior Director of Digital Audio at Radio-Canada, are more pragmatic, reminding us that Canada's public broadcaster is not a technology company but a content company and that it is very hard to develop all applications for all devices. The executives explain that they would like to develop the main applications for connected objects, but above all, their focus remains on the *Ohdio* mobile and web platform, where content can easily be accessed via Google Home, Alexa, Sonos and any other connected devices where the smartphone remains the primary portal.[43]

Augmented reality, the next big thing TEC

> I do think that a significant portion of the population of developed countries, and eventually all countries, will have AR experiences every day, almost like eating three meals a day. It will become that much a part of you.[44]

According to Mark Zuckerberg, CEOs of Apple and Facebook, smart glasses have a more global purpose: to build the "metaverse."[45]

> The metaverse is a virtual replica of the real world. It's a virtual environment that you can "plug into" via virtual reality technology to hang out with friends, play games, work, create, and more. Perhaps the best way to think about the metaverse is as embodied internet, versus today's mobile internet.[46]

AR makes digital alterations or additions to the existing environment, while generally remaining focused on one's physical surroundings.[47] For the media and entertainment industry, there would no longer be any barriers to creativity other than those of financial investment and skill. Some examples are described below.

Social networks are focusing on augmented reality.

Snapchat has been testing a visual search tool, Scan, since 2019. By using a smartphone camera, it is now possible to identify various objects on the social network such as plants, music, food, and wine labels, or even solve mathematical problems (Photomath). Augmented reality filters and music in tune with your environment are suggested for the montages.

Since 2020, the social network has added voice command to make using augmented reality even more fun: "Hey Snapchat, make my hair pink!"[48] Voice seems to be the way of the future, and you must ensure you are there.

Augmented reality has a taste for the spectacular.

> So, what will event of the future look like? No one knows exactly, but the virtual event genie is not going back in the bottle.[49]

On 8 May 2018, Taylor Swift kicked off her *Reputation Stadium World Tour* before a sold-out crowd in Glendale, Arizona. A record-breaking 60,000 fans were transformed into a massive work of art over the course of two hours using a variety of state-of-the-art production elements, including digital wristbands and PixMob's new Moving Head projectors, which created never-before-seen dynamic light effects in sync with the show.[50]

On 2 February 2020, in Miami, Florida, PixMob also took centre stage at the immensely popular SuperBowl halftime show with Shakira and Jennifer Lopez. The stage and spatialised lighting effects become an extension of the stage lighting concept and the crowd interaction greatly enhanced the immersive experience.

> The next revolutionary step in that sense will be the sound, giving the audience the impression of being inside the stadium.[51]

The profession of DJ eventually evolved to VJ and now VJing is emerging from the techno underground, to combine music and the creation of ambiences in mixed realities. In addition to musical events and shows, could this mixed reality be a potential area for the development of archives and youth content? To embody audio books? Are we really that far from this reality?

Augmented audio: 3rd dimension and immersion TEC

Immersive audio, the new multi-dimensional approach to audio storytelling, immerses listeners in an expanded sound field beyond traditional surround sound. In 2015, video games first fuelled the adoption of 3D headsets, then music lovers came onboard.

Just as volumetric video gives perspective and depth to visual content, spatial audio is delivered in such a way that the listener interprets sounds as occupying various spaces in their environment. This technology creates realistic sensory and immersive experiences for listeners.

The latest editions of Apple's AirPods feature spatial audio technology: when activated, sounds are perceived according to the listener's position as well as the position of the source device.

At CES 2021,[52] Sony announced the launch of a speaker that transmits 3D sound. The development of such devices, as well as increases in sales of smart headphones, could support the production of immersive audio content.

On the content side, there are indications several productions are in the experimental stage and others are in development.[53]

In 2019, the Recording Academy changed the "Surround Sound" category in the annual Grammy Awards to an "Immersive Audio" category. This evolution is not just a title change, it defines a technological shift. The production technology changes from surround (horizontal, left, right, front to back), to being immersive or "3D": sound can now come from above or below, at any time, opening a new dynamic audio field.[54]

The Spotify, Amazon music and Apple Music platforms have introduced spatial audio for some music. Broadcasters are also testing:

In February 2020, iHeartRadio moved into immersive sound podcast production, starting with a dozen offerings on its platform in 2021.[55] Three of their studios are equipped to produce in 3D sound.[56]

In the spring of 2021, Ohdio, Radio-Canada's digital audio platform, launched a 3D fiction: Immersion. When asked about the experience, Natacha Mercure, Radio-Canada's senior director of digital audio, warns against the overuse of effects. "There are certain 3D audio experiences that are not always good, the sound effects are dizzying and distract from the content. I think that we will continue to experiment, maintain a proper dosage, and ensure a relevance to the subject matter and context, then, eventually, more and more people will have the right equipment to be able to appreciate the experience. Remember that you need headphones to experience the spatialisation effect."[57]

Technology, in the service of original content, can be a way to differentiate oneself from other platforms and make one's brand shine from the perspective of innovation.

Avatars, out to conquer a worldwide audience TEC

GlobalWebIndex (GWI) estimates that, in 2021, there were 226.6 million video gamers in the US, roughly 82% of the population.[58] An industry estimated to be worth US$125.6 billion according to ReportLinker, with an average annual growth rate of 12.4% through 2025.[59]

For gamers, the virtual world has long juxtaposed the real world. During the pandemic, this space allowed many of them to find themselves in the metaverse. These new blank spaces have begun to be colonised by brands and celebrities, who buy plots of land with virtual currency.

Concerts, in times of confinement, have migrated there and with the promise of global reach, musical artists have developed their avatars. As with radio and Tv, social gaming platforms are now doing variety programming to create more traffic.[60] The number of concerts has increased significantly, as have sales of promotional items. Some examples: Travis Scott on Fortnite in April 2020, Ava Max on Roblox in September 2020, Justin Bieber, John Legend, The Weeknd on Sandbox in September 2020, Lil Nas X on Roblox in November 2020, Ariana Grande on Fortnite in August 2021, reaching tens of millions of live fans.[61]

In September 2022, iHeartMedia opened its iHeartLand doors on Roblox. Players can become music moguls by collecting sound energy to power their own custom music studio as well as unlocking upgrades, fan experiences and rewards.[62]

Today, job interviews are conducted on these platforms and celebrities are interviewed by journalists.[63] It's a good way for radio personalities and DGs to reach out to younger audiences.

Robots, clones becoming more human in the media TEC

Robots have become part of our society. In addition to engaging in conversations, they write, translate, and help detect truth from falsehood in the largest newsrooms in North America.[64]

What about audio?

In 2014, Radio Nova in France created a robot host. In 2018, while newsreader robots were being experimented with in China, host, actress and singer Taryn Southern released a debut album, *I AM AI*, featuring songs that were written entirely by artificial intelligence.[65] In February 2021, artificial intelligence cloned the host, whose AI version speaks several languages fluently.[66] In 2020, digital doubles were vocally trained to become hosts and the results were startling.[67] An audio robot can now address a global audience, without language barriers.[68]

Will a voice-driven clone be able to support researchers, promote in public spaces, present an advertising segment, narrate, and create a genuine emotional connection with listeners?

Transcripts, to foster discoverability TEC

In 2019, Artificial Intelligence started rubbing shoulders with audiobooks and podcasts.

Audible launched Captions, which provided real-time transcription of audio books. However, the new feature was not well received by publishers who felt that the Amazon subsidiary was overstepping its rights and violating copyright. They took Audible to court, and subsequently, the company decided in March 2020 to abandon the tool.

As of 2019, Google offers real-time transcription of its podcasts. It is using these transcripts as metadata to help users find the podcasts they want to listen to even if they don't know its title or when it was published.[69] This also allows Google to actually "understand" what is being discussed in the podcasts without having to solely rely on the not-so-detailed notes and descriptions provided by the podcasters.[70]

Since then, Spotify has followed suit, as can read the lyrics of music simultaneously.[71] In addition, Apple is offering dictation for podcasts.

Infotainment, multimodal interface and immersive experience TEC

With the increasing availability of advanced driver-assistance systems (ADAS) and the rise of autonomous vehicles, time spent in the car is no longer dedicated entirely to driving. According to Intel's "Passenger Economy" study, by 2050, 250 million hours will be freed up by autonomous driving in the world's most congested cities.

At a time when Toyota, Audi and Google are testing autonomous cars without steering wheels, the automotive industry is rethinking the interaction between the driver, passengers, and the vehicle. The vehicle's interior can be transformed into a movie theater, a living room, a game room, and perhaps even a coworking space.

The Apple car is expected to be launched in 2024. Is this Apple car the next iPod?

> We started this Crosswire with Apple and we end with Apple. Where does a car fit into Apple's plans? The iPod represents one possible comparison: It was a pivotal product that moved Apple from being just a computer company, and it sets the table for the iPhone.[72]

While we wait for a more extensive 5G network and the possibility of broadcasting 8K content offerings, alliances between producers and manufacturers are already in motion to turn the car into a new immersive entertainment venue: Audi and Disney, Intel and Warner Bros, etc. and it's only just begun.[73] It will be important to ensure that audio content is part of the mix.

In the shorter term, broadcasters are placing great importance on retaining the listening hours of mobile listeners. This is an important issue when you consider that these hours account for almost a third of the total estimated listening volume.

The media companies interviewed all said that being present on the new dashboards is a priority. Strategic alliances are moving to integrate their radio and audio brand with aggregators such as TuneIn and iHeartRadio.

3.4.2. Content: survival is about relevance

None of this happens without the technologies. But where would they be without the content that fuels them? Content and broadcasting rights have become a media company's most valuable asset. Disney, Netflix and other producers have clearly understood this. So have the technology manufacturers. Apple, Amazon and the other giants have entered the content race, investing massively, which for local media creates increasingly untenable bidding wars. The resulting glut may also affect the discoverability of content.

So, what's next for radio? What makes it unique and still relevant? What strategies will help it develop and compete?

<table>
<tr><th>TECHNOLOGY</th><th>CONTENT</th><th>DISTRIBUTION</th><th>BROADCAST</th><th>AUDIENCE</th></tr>
<tr><td>Records, Vinyls, Cds</td><td rowspan="7">Music</td><td>Stores</td><td rowspan="2">Venues, Events</td><td>Silent Generation</td></tr>
<tr><td>Transmitters</td><td>Talent Agencies</td><td rowspan="3">Boomers</td></tr>
<tr><td>Receivers, Transistors</td><td>Record Companies</td><td rowspan="5">Broadcasting</td></tr>
<tr><td>Tv Sets</td><td>Radio Waves</td></tr>
<tr><td rowspan="2">Games Consoles</td><td>Cable</td><td rowspan="3">X Generation</td></tr>
<tr><td>Satellites</td></tr>
<tr><td>Computers</td><td>DAB</td></tr>
<tr><td>WWW</td><td rowspan="7">Voice</td><td rowspan="2">Online Stores</td><td>Satellite Radio</td><td rowspan="5">Y Generation, Millennials</td></tr>
<tr><td>Artificial Int.</td><td>HD Radio</td></tr>
<tr><td>Telephones, Tablets</td><td rowspan="8">Internet
Mobile Phones
3G, 4G, 5G
Data Storage</td><td rowspan="8">Streaming Audio</td></tr>
<tr><td>Mp3</td></tr>
<tr><td>A/V Realities</td></tr>
<tr><td>Smart Vehicles</td><td rowspan="2">Z Generation</td></tr>
<tr><td>Smart Speakers</td></tr>
<tr><td>Smart Objects</td><td rowspan="3">Advertising</td><td>Alpha Generation</td></tr>
<tr><td>Smart Tv Sets</td><td rowspan="2">New citizens coming from immigration</td></tr>
<tr><td>Smart Keys, Boxes</td></tr>
<tr><td>Utilisation - Data</td><td></td><td>Utilisation - Data</td><td>Consumption - Data</td><td></td></tr>
</table>

Legend: GROWING, DEVELOPING – SLOWING, STABILITY – DECREASING

Figure 17 – Elaboration by Sylvain Lafrance and Louise Hélène Paquette

Connection, focus on proximity CON

How does radio capitalise on this sense of connection in an era where social media has become the primary connector?

> Radio is THE medium of proximity and that is one of its greatest strengths. It must not abandon its principal role, its DNA. Radio must be connected to its local community, its reality, and meet its needs.[74]

In an interview, Mr. Lachance compares Quebec radio in North America to that of Italy in the European Union. The French language and the presence of a strong star system work in favour of radio in Quebec and allow for even greater proximity.

According to Signal Hill's most recent report, *Radio on the move*, there is a high degree of duplication between platforms: 86% of North American online continuous music fans also listen to radio.[75] Why? To feel connected, they say. Over and above the fact that it is useful and free, Canadian respondents to this study described their reason for tuning in as being: for practical local market information (weather, traffic, etc.) (47%), for breaking news (46%), to find out what's happening in general (44%), for local information (43%), and for the human contact of on-air personalities, live (31%).[76]

In North America, the increase in talk radio listening during the pandemic validated the link of listener engagement with radio, as well as with news podcasts.[77]

However, trust in the media is sliding among the public in the US and Canada. According to Edelman's Trust Barometer, only 51% of Americans trust the mainstream media. In Canada, the ratings of the two Public Radio broadcasters fare somewhat better. Seventy percent of Canadians strongly agree that CBC/Radio-Canada's programming provides information that they can trust.[78] Private and Public Radio have their own unique strengths. Regardless of whether the business is primarily profit-driven or content-driven, building on the credibility of the voices and the connection power of radio is a priority according to the broadcasters surveyed. It's still the medium with the greatest reach, but there's a trend that must be reversed.

Celebritisation, focusing on creating celebrities CON

The celebritisation of on-air personalities is one strategy among many.

The planet is the new broadcasting territory for the American platforms Apple and Amazon, and the Swedish platform Spotify. This international scene provides them with the means to attract celebrities to go on air, for podcasts and "between songs" segments.

In fact, and more specifically in the United States, there is a marked shift of recognised talent jumping from traditional media to streaming platforms. They are banking on well-known presenters and DJs.[79] This strategy has already been adopted by satellite radio with the likes of Jim Ladd, Pat St. John, Kid Leo and many others co-hosting with celebrities who rose to fame for accomplishments other than their gigs as presenters: Little Steven, Tom Petty, Billy Joel and more.

On Apple Music, for example, Elton John hosts "The Rocket Hour": pre-formatted radio episodes that include an hour of discussions, interviews, and well-crafted music that runs in a loop until the next episode.

For podcasts, these platforms, which are not regulated by the FCC,[80] provide greater freedom of expression to certain hosts who are known to spark controversy, such as Joe Rogan on Spotify or Howard Stern on SiriusXM. Others, such as Barack Obama on Spotify and the previously mentioned personalities, rely on fame.

In April 2021, the Australian division of iHeartRadio introduced *TikTok trending* radio dedicated to TikTok's musical hits and hosted by the platform's famous influencers. Later in August, Sirius XM, owner of Pandora, launched *TikTok Radio* for the North American market, with the same concept. It's a great way to discover talent and train the next generation.[81]

The same scenario applies to audiobooks: the proximity of audio enables authors to establish a connection with the public.[82]

> In the audiobook market, there are some very big players, including Audible. How can we position ourselves? Radio-Canada has the opportunity to make audiobooks that stand out from the rest. In addition to having extraordinary archives, we can call on artists and celebrities to narrate them.[83]

For traditional radio, it is a time for risk management: protecting existing talent and recruiting influencers to win over younger audiences.

> In radio, we are on the lookout for skills that tend to shift away from over-specialisation. The profession of radio host is evolving, it now requires a lot of versatility, digital expertise, complete mastery of social networks, an understanding of Google Analytics and how the Customer Management System (CMS) works, to be able to film, script, edit (…) be good at content and... be creative. When hiring, yes, we consider the number of followers.[84]

Personalisation, focus on individuality CON

Technology has introduced egonomics and the use of data allows for increasingly personalised experiences.

Following the personalised playlist "for you", Apple's algorithm offers a personalised radio station named after the user. Based on their favourite pieces of music, the station then adds others of similar musical modulation for the listener to discover. Each listener now has their own personalised DJ.

In addition to AI, there is also active personalisation: the user can subscribe to podcasts, add radio programmes to their favourites, or be notified when new episodes are released. The priority of Radio-Canada and CBC is to give power to the user but also to try to avoid the echo chamber effect. They want to keep a balance between editorial choices and content curation.

Real-time advertising, which enables dynamic and programmatic ads, is gaining popularity with advertisers. Podcasts and social audio may just be the natural format for context-driven targeting. Most podcasts have a clearly defined category of topics and, due to the population scale and the creator economy, they cover a wide range of topics and provide a natural context for brands to reach audiences that may be interested in them. Many platforms have acquired the software to monetise their audio content.

Recommendations can render ephemeral radio content more durable, enable the establishment and development of a catalogue of audio content, make it discoverable and optimise listening.

Retention, focus on relevance and pace CON

Social networks have created an appetite for shorter, more condensed, and rhythmic formats, to which users have become accustomed.

According to the experts we interviewed, content must create a favourable impression very rapidly. Six seconds is the maximum attention span determined by the research team at Microsoft Advertising to retain the consumer's attention.[85] Even though the study's findings were challenged later on, the six seconds have since become the norm for media retention.

Is this the end of the 30-second spot? In a confined listening space, they have come to be perceived as more intrusive. The audio advertising formats also tend to be shorter, between 6, 10 and 15 seconds, mirroring the editing of very concise stories.

Updates must be faster as well. When agreements are concluded with the manufacturers of smart speakers, the media are asked to create audio information content which is renewed every 60 minutes. Given the extra workload for newsrooms, there are teams dedicated to these third-party platforms, to the more frequent updating of breaking news on audio platforms and notifications to stimulate and maintain the rhythm.

In spring 2019, local radio stations helped NPR deliver more news than ever before to Amazon smart speaker listeners. After asking Alexa to "play the news", users went from hearing NPR's hourly newscast to receiving a curated stream of stories from Member stations and NPR, blending local reporting with national headlines. Average NPR smart speaker listening increased from five minutes per session to 25 minutes per session with the long-form news experience.[86]

The structures of some radio news reports are reviewed to stimulate the listener's interest in the first few seconds. The same is true for breaks between songs, which tend to be specially prepared and scripted depending on the topic, target and listening platform, to sustain interest without irritating the listener.

Editorialisation, focus on diversity CON

For several years, we have noticed more importance being given to editorialising in reporting. The podcast format allows for this content, and this category is among the most successful in terms of ratings. In radio, there are more duos, whose opinions are direct opposites and thus polarise the discussions around topical issues. The diversity in points of view and debates seem to have been stimulated by the current events surrounding former US president Donald Trump, which has turned journalists into veritable marathoners.

In 2020, social justice issues rose to the top of the agenda at every level: governmental, corporate, and individual. Giving a voice to the diversity of voices is one of the cornerstones of public broadcasters.

Domination, focusing on exclusivity CON

Niche domination is another strategy for exclusivity. Stingray, a Quebec-based media company that started out digital, has developed original niches through alliances and acquisitions.

> Yes, we have found our niches. We are the global leader in classical music with Classica, the leading broadcaster of video concerts with Qello Concerts, the "Netflix" of concerts, and with Karaoke, we have reached $80 million in sales revenue. Today, worldwide, we are among the top 3 music companies in terms of distribution, and even in the top 5 in terms of revenues.[87]

However, competition is fierce. Some platforms are returning to traditional formulas with the intention of capturing more market share. These include live radio on Apple Music, Spotify, Pandora, etc. To compete with Stingray's Karaoke format, Spotify launched its offering in July 2021. Also, to compete with Stingray and its Classica concert pay channel, Apple purchased Primephonic's catalogue in 2021 and a year later launched the Qello app, dedicated to the listening of music, concerts and documentaries.[88]

Perhaps it's time to consolidate and invest to maintain gains in certain niches?

Promotion, counting on storytelling CON

Discoverability and time spent listening

Audio content is now more durable. In order to foster/encourage discovery and the promotion of content, radio broadcasters, digital audio platforms and brands tend to diversify their teams and recruit from the publishing field.

This is the case for Netflix for example, which was seeking to consolidate their teams of journalists, editors/copywriters, community managers and other related profiles, by creating an entirely new approach to entertainment. The idea is to improve and showcase the platform's contents and make the productions sexier.[89] Of note is the now famous article on American presidential couples, *The Ascent: Political destiny and the makings of a first couple*, which appeared in the monthly American magazine The Atlantic, in March of 2015, which was in fact branded content to promote the launch of the series House of Cards.[90]

Can this strategy be used for the promotion of podcasts?

In an interview, Radio-Canada confirmed that it pays special attention to this facet and that it has a team dedicated to parcelling out "nuggets" at the right times. La UNE is updated seven days a week, four times a day. Beyond the platform, the Canadian public broadcaster is banking on an editorial strategy to enhance all this content. In terms of skills, those of the publishing industry were called upon to ensure greater coherence and fluidity to promote discoverability and, above all, to generate viewing. It's a strategy that has borne fruit:[91]

> Five or 10 years ago, web sites ruled. With webmasters we functioned on the basis of reading and pages viewed. It was the logic of the web, of writing. Something needed to change. Now, we turn on the radio and audio from the start, we encourage listeners to listen to the content, not to read the transcripts. Today, on our dashboard, we tend to value time spent listening on the platform.

Advertising and brand content

In the more intimate space of radio and audio content, advertising can easily be perceived as invasive. If it is to enter this bubble, it must be entertaining and relevant. Many advertisers have decided to tell their stories to create an emotional connection with podcast listeners. In fact, this format is gaining popularity among commercial stations and publishers, 88% of whose advertising revenue was based on this format in 2018.[92] Two examples from 2021:

Luxury brand Estée Lauder chose audio to bring to life rich, branded short-form stories with the New York Times.[93] The Times' "Modern Love" show generated over 3 million monthly downloads.[94]

With a view to sustainable development, IKEA decided to stop printing and chose to deliver its 2021 catalogue via podcasting with enriched content.[95]

With so much audio content being produced every day, marketing seems to have become essential to the development of catalogues.

Audio works, focus on well identified content CON

Audio design

According to the interviews and observations, marketing and merchandising strategies have been put to work for each of the audio products showcased in the carousels. Much like a music album, each piece of audio content now has its own 'sleeve'. Both Quartz and the Washington Post have developed this new area of expertise: audio design.

This includes marketing, where the orchestration of variables must contribute not only to awareness but also to attribution: tattooing, opening signage, visuals, presence on social networks, etc. Observations have shown that this strategy is not yet adopted by all publishers and broadcasters.

NPR, which does not own any stations, broadcasts its content on partner stations and platforms. Each of its audio products is tattooed in a consistent auditory and visual manner. Spotify is another example, which, like Netflix, is showcasing its original productions. The tattoo must be identifiable, even from a smaller telephone screen.

Search engine optimisation

As mentioned in the previous section, the transcription of texts using artificial intelligence supports the referencing of audio content with its ability to transform oral content into many keywords. The companies interviewed see this metadata as a great opportunity to promote the discoverability of content, better indexing of music or audio productions to feed search engines.

In the shorter term, the media and cultural companies interviewed have directed their actions towards training in SEO skills for their employees and associations of audiovisual workers. This is especially true with the disappearance of cookies following the implementation of stricter laws on the protection of users' private data.

> Many people have explained the importance of SEO over the last few years, but what are the actions to be taken on a daily basis? It's time to internalise and make the practice of discovery a reality.[96]

3.4.3. Distribution: innovation means conquering new markets

The media and entertainment companies surveyed are all seeking to diversify their business models to counter declining advertising revenues, stagnant subscriptions to their platforms battling the biggest players (Spotify, Apple Music, Amazon Music and YouTube) or eventual decreases in government funding.

The distribution segment offers many opportunities in this respect.

The emergence of creators brings with it talent agencies to look after their interests. Record companies are teaming up with social networks and digital platforms to promote song catalogues. Finally, vertically integrated media companies, those who also own the distribution channels, are organising to leverage their database for the benefit of their business partners.

TECHNOLOGY	CONTENT	DISTRIBUTION	BROADCAST	AUDIENCE
Records, Vinyls, Cds	Music	Stores	Venues, Events	Silent Generation
Transmitters		Talent Agencies		Boomers
Receivers, Transistors		Record Companies	Broadcasting	
Tv Sets		Radio Waves		
Games Consoles		Cable		X Generation
		Satellites		
Computers		DAB		
WWW	Voice	Online Stores	Satellite Radio	Y Generation, Millennials
Artificial Int.			HD Radio	
Telephones, Tablets		Internet Mobile Phones 3G, 4G, 5G Data Storage	Streaming Audio	
Mp3				
A/V Realities				
Smart Vehicles				Z Generation
Smart Speakers				
Smart Objects	Advertising			Alpha Generation
Smart Tv Sets				New citizens coming from immigration
Smart Keys, Boxes				
Utilisation - Data		Utilisation - Data	Consumption - Data	

Legend: GROWING, DEVELOPING – SLOWING, STABILITY – DECREASING

Figure 18 – Elaboration by Sylvain Lafrance and Louise Hélène Paquette

Public spaces, commercial potential to expand your territory

DIS

All public spaces have become territories to exploit to expand reach.

Alliances between media distribution and transportation companies are natural and effective but, according to sources, not very lucrative. In 2021, for example, Air Canada offers exclusive content from Stingray, HBO and Crave (Bell Media's video-on-demand platform). American Airlines offers content from Apple Tv+ and Apple Music.

With smart cities, the number of opportunities is growing rapidly. Which expansion strategy should be considered?

Radio shops, advertiser and listener loyalty DIS

In Quebec, about ten years ago, the traffic on radio websites gave rise to online shopping sites, offering a showcase for advertisers' products and services, and "special" discounts for listeners.

The concept is called *Shopico* for Bell Media and *Ma Boutique Radio* for Cogeco Media. Revenues have been growing steadily over the years.[97] This initiative has been adopted by some local radio stations, which see it as a way of diversifying their revenues. The products selected are in keeping with the values of the radio or audio brand. In addition, this platform makes it possible to promote "local purchasing" and to help shopkeepers in another way.

For a public broadcaster, the commercial angle can be tricky depending on the country, the licence granted by the regulator and the non-competition agreements between local media companies. However, the concept could be adapted to support charities and cultural activities.

Record companies, alternatives for independent artists DIS

There is a tendency for independent artists and musicians who feel left out and are generally dissatisfied with larger record companies to band together.

> Welcome to the biggest stage on earth

In 2015, Google launched the *YouTube for Artists* platform to support artists by offering them visibility via a profile, tools and training to drive engagement with fans.[98]

> YouTube supports your music career

Under the dedicated tab, there is a guide for artists, agents and distributors to facilitate the creation of a discography, channel and community. To monitor performance, YouTube provides users with detailed viewing statistics, which allow them to adjust strategies (types of content that work best, geographical origins of audiences, etc.). In 44 countries, YouTube produces rankings of the most viewed titles, songs, artists, videos (unweighted data) as well as current trends. Users can even get the level of granularity of a particular city. The site is very well done. It democratises and facilitates access by the artists themselves. To get revenue from advertising, the artist must generate a minimum of 10,000 views.[99]

Broadcasters support and help the discoverability of emerging artists; this is part of the DNA of radio. How do you solidify your place in the equation?

Talent Agencies, to support the market of emerging audio creators DIS

> Never before have so many brands, entrepreneurs, influencers and regular folks had instant access to their most devoted audience.[100]

There has been a wave of consolidation in North America on the talent agency side.[101] For them, the new territory to exploit is supporting audio content influencers, the new social network influencers such as Clubhouse, Spotify's Greenroom and Twitter's Space that have emerged in the US.[102] Together they are attracting millions of weekly listeners and more and more followers, and big brands have been quick to take an interest in them.

> We've been able to partner creators we met on Clubhouse immediately with Fortune 10 brands.[103]

The democratisation of software and tools, as well as the larger population base of the United States, have allowed this new economy to emerge very rapidly.

Interdependent, creators derive benefits from social network platforms, which, in turn, depend on content providers to generate traffic. How can broadcasters benefit from the next generation in hosting?

Data, geolocation and cross-platform approach DIS

The US media measurement market is unique in that it is decentralised: video and audio platforms have their own data which they share only with advertisers. For-profit research firms seek to capture cross-platform audience measurement data to become the benchmark for an ad buying exchange. The deployment of these measures is anachronistic to the needs of the market.

Impatient media and entertainment producers and broadcasters are investing in their own measurement systems. In September 2021, NBC Universal announced the creation of an independent audience measurement system.[104] In March 2022, it announced that it would open a platform for sharing its first-party data with advertising agency OMG.[105]

By leveraging their first-party data from their mobile and internet subscribers, Bell Media, one of Canada's largest media players, has developed a system to track the customer journey. They have enriched their data pool with, among other things, the purchase of the Environics survey firm and its consumer data in December 2020.[106] These analyses, which can obtain samples the size of several million individuals per second, are intended to enhance their offer to advertising agencies. It is now possible for them to make real-time ad placement for advertisers on their digital platforms. This is a strategy to secure some of the advertising dollars that go to Google, Facebook and Amazon, which shared a combined 64% of the total digital advertising revenues in 2021.[107]

In terms of business intelligence, from analysis to the exploitation of mass data, investments are rapidly increasing on the part of advertisers to create in-house departments, while advertising agencies are putting this expertise forward. However, the search for talent remains the primary issue, and the number of related programmes at colleges and universities is growing at lightspeed.

The data age is here.

With data capture comes responsibility. Security is becoming paramount for protecting personal consumer data. How can public broadcasters, sensitive to and protective of the personal data of citizens, capitalize on their usage data?

3.4.4. Diffusion: concentration and alliances in a world of giants

As discussed above, the North American entertainment and events market has become concentrated around 4 or 5 players.

Similarly, in both the United States and Canada, broadcasting is now a market concentrated around a few larger players, who are trying to maintain their profitability through a multi-channel offering. These players are concentrating their efforts on the deployment of their digital platform and are forming alliances to face the overwhelming competition from the online platforms of the digital titans.

If content is important, so is the quality of the user experience. How can you compete if you don't band together?

TECHNOLOGY	CONTENT	DISTRIBUTION	BROADCAST	AUDIENCE
Records, Vinyls, Cds	Music	Stores	Venues, Events	Silent Generation
Transmitters		Talent Agencies		Boomers
Receivers, Transistors		Record Companies	Broadcasting	
Tv Sets		Radio Waves		
Games Consoles		Cable		X Generation
		Satellites		
Computers		DAB		
WWW	Voice	Online Stores	Satellite Radio	Y Generation, Millennials
Artificial Int.			HD Radio	
Telephones, Tablets		Internet Mobile Phones 3G, 4G, 5G Data Storage	Streaming Audio	
Mp3				
A/V Realities				
Smart Vehicles				Z Generation
Smart Speakers				
Smart Objects	Advertising			Alpha Generation
Smart Tv Sets				New citizens coming from immigration
Smart Keys, Boxes				
Utilisation - Data		Utilisation - Data	Consumption - Data	

Legend: GROWING, DEVELOPING – SLOWING, STABILITY – DECREASING

Figure 19 – Elaboration by Sylvain Lafrance and Louise Hélène Paquette

Business models, transition and diversification DIF

Transition to digital

In the North American market, offerings are becoming increasingly fragmented as the players deploy their streaming platforms and content catalogues.

Broadcasters, who are primarily content companies, are integrating new ways of doing business and new skill profiles into their teams. Organisational structures have also evolved in recent years to introduce digital expertise.

Upon arriving at Radio-Canada, the new executive management wanted to create a division completely dedicated to digital audio, under which digital resources are now grouped. The ability to better communicate the vision and agility of these resources, as well as allowing the radio teams to better focus on them, seems to be a guarantee of success.[108]

In February 2021, iHeartMedia – the largest audio company in the US – announced a new operational structure with dual responsibility for digital and broadcasting. As of August 2021, the iHeartMedia Digital Audio Group accounted for 20% of the company's total consolidated revenues and 23% of its profits, which grew 53% for this segment over the previous year. Both segments continue to report to Bob Pittman, President and CEO of iHeartMedia, and Rich Bressler, President/Head of iHeartMedia.[109]

According to both models, optimising organisational structures requires autonomous leadership with greater execution agility. These directions require new skills that come from digital.

Diversification of business models DIF

Stingray, which used to broadcast music channels exclusively to television subscribers, purchased some 100 traditional radio stations in English Canada in 2018 for $500 million.

> As a result, we've built a great team. And I can tell you today that, for the first time, the company is moving at great speed in this sector…
>
> When we did a public stock offering for Stingray our sales volume was $71 million, our profits were $27 million and 100% of our revenue was cost per Tv subscriber. But that model is changing and is no longer sustainable in the long term. Four years ago, I was at Comcast, and the big boss said to me: "Either you go to the subscription model, like Netflix, or you go to an advertising model. If you don't, you're going to disappear.[110]

Newspapers were among the first to suffer the consequences of the shift in revenues to digital. Significant financial losses have stimulated newsrooms to diversify their business models. By offering new rituals, daily newsletters and podcasts, they built up databases. The New York Times sent out its first e-newsletter in 2001. Twenty years later, the newsletter reaches 15 million readers every week. In addition, the newspaper has relied on exclusive content to boost subscriptions.[111] By August 2021 there were more than 8 million subscribers and, as executives said, the number of people paying for The New York Times was still a fraction of the 100 million people who signed up with their email address on nytimes.com. Of new subscriptions, 45% were for non-news content: cooking, crossword puzzles, etc., which have a high conversion rate.[112]

By organising events, from conferences to galas to journalist-led trips, news media have relied on the experience to drive engagement and build their brands. In 2019, NPR hosted about 100 events that the broadcaster considers franchises that it leveraged to grow audiences and sponsorship revenue. These ranged from conferences (How I Built This Summit on entrepreneurship) to shows (Tiny Desk concerts), which were extensions of radio shows or podcasts. The American radio group Audacy organised cultural and gastronomic events and shows. According to Fortune magazine, this segment accounted for 40% of total revenues in 2020.[113]

The digital shift has forced news media to develop tech sectors and some are taking advantage of this new expertise by selling their technologies to other media. The Washington Post sold its digital content production solution (ARC Publishing) to 30 clients on four continents. The Globe and Mail is one of them. Vox Media and Hearst Media also sell content management solutions. La Presse de Montréal sold, in consultation, the interface and know-how of its news platform technology.

Alliances, to compete with the titans DIF

In the audio industry value chain, Spotify, YouTube, Amazon, Apple and Twitter have established themselves as broadcast intermediaries. Their massive investments in content have put pressure on local media and producers. The latter have reacted.

Local offer

Since 2017, the offer has become fragmented. As with video (Peacock, Hulu, ESPN, HBO, Paramount, Discovery, CRAVE, Club Illico, ICI Tou.tv, etc.), the North American media have developed their own audio platform and are banking on their content. The strategy has proved effective.

Like BBC Sounds in the UK, the public broadcaster's Ohdio trails Spotify in Canada.[114] The basic premise for Radio-Canada was to create a central destination where Francophone listeners could access the best of their content. "We had all the expertise, the catalogue, the brand, the brand equity to create that destination," says Caroline Jamet, General Manager of Radio and Audio at Radio-Canada. This strategy has proven them right: in June 2021, the audio platform generated an average of 5 hours 7 minutes of time spent listening per week.[115]

Concerted offer

Faced with an increasingly fragmented offer, will the market have the option to focus on simplifying the user experience? The question is, which companies are best positioned to play the role of aggregator? Which players have or will have access to technology platforms? While competing with the digital titans is a difficult challenge, retaining control of data and content distribution is a strategy that is sound.

The private broadcasters interviewed see partnerships with more global platforms as a vision for the future. It is awkward to direct listeners to another brand for online listening, but there are several future benefits. When the time comes to take FM out of cars, they say they are more likely to be on the connected dashboard than on their own.

It is with this philosophy that Bell Media has entered into an agreement with iHeart-Radio to house online radio stations, opening up the Canadian market.[116] "It's an international brand with more negotiating power than we have", says Chloé Boissonnault, General Manager of French-language radio at Bell Media.

Like ICI Tou.tv, Radio-Canada's video-on-demand platform, the Ohdio platform has also started to partner with third parties, such as Télé-Québec, France Culture, RFI, and France Inter. Being an aggregator is also part of their plan.

In response to its larger and more competitive English-speaking market, CBC has instead opted for a different strategy of hyper-distribution, of being present on as many platforms as possible to increase its reach.

The American public broadcaster NPR, which is basically a content producer and not a station owner, has gone in the same direction as the CBC and has increased its agreements with other broadcasting platforms in exchange for royalties. This strategy has paid off in terms of increasing its impact: in 2019, NPR reached 132 million listeners on average per month, an all-time high.[117]

Global reach

At Stingray, in 2019, 70% of sales were outside of Canada, excluding radio. Sales in the US and the rest of the world grew by 20% to 40% annually. Direct-to-consumer subscriptions were up 33%, according to Éric Boyko, the president of the company:

> Canada is great, and Quebec is wonderful, but we have 10 million households in the country. Comcast alone has 22 million. So, when we meet Comcast in Philadelphia, that's two and a half times Canada. Samsung, on the other hand, is going to have 60 million connected TVs in the next two years. There are no two ways about it. For entrepreneurs, the only way to succeed is to go global.[118]

In August 2021, iHeartMedia partnered with NRJ to create new French podcasts, translate some existing podcasts and use iHeart's subsidiary Triton Digital to monetise the French audience.[119] The translated shows are available on the apps of both companies. The royalty and ad revenue agreement process leverages Triton Digital's sourcing platform and programmatic audio marketplace.

> As podcast audiences continue to explode in the U.S, the medium is also going global, developing significant fan bases around the world.[120]

Faced with increasingly saturated markets and outsized competition, will the traditional players have any choice but to join forces to counter the hegemony that is taking hold and, by the same token, promote their country's local productions?

3.4.5. Audience: engaging new segments is the key to sustainability

Do all segments of the population feel well understood and well served? Do they identify with the audio content? Do they feel committed to their public broadcaster or to private broadcasters? Do they recommend the content to their peers?

<table>
<tr><th>TECHNOLOGY</th><th>CONTENT</th><th>DISTRIBUTION</th><th>BROADCAST</th><th>AUDIENCE</th></tr>
<tr><td>Records, Vinyls, Cds</td><td rowspan="6">Music</td><td>Stores</td><td rowspan="2">Venues, Events</td><td>Silent Generation</td></tr>
<tr><td>Transmitters</td><td>Talent Agencies</td><td rowspan="3">Boomers</td></tr>
<tr><td>Receivers, Transistors</td><td>Record Companies</td><td rowspan="4">Broadcasting</td></tr>
<tr><td>Tv Sets</td><td>Radio Waves</td></tr>
<tr><td>Games Consoles</td><td>Cable
Satellites</td><td rowspan="2">X Generation</td></tr>
<tr><td>Computers</td><td>DAB</td></tr>
<tr><td>WWW</td><td rowspan="7">Voice</td><td rowspan="2">Online Stores</td><td>Satellite Radio</td><td rowspan="5">Y Generation, Millennials</td></tr>
<tr><td>Artificial Int.</td><td>HD Radio</td></tr>
<tr><td>Telephones, Tablets</td><td rowspan="8">Internet
Mobile Phones
3G, 4G, 5G
Data Storage</td><td rowspan="8">Streaming Audio</td></tr>
<tr><td>Mp3</td></tr>
<tr><td>A/V Realities</td></tr>
<tr><td>Smart Vehicles</td><td rowspan="2">Z Generation</td></tr>
<tr><td>Smart Speakers</td></tr>
<tr><td>Smart Objects</td><td rowspan="3">Advertising</td><td>Alpha Generation</td></tr>
<tr><td>Smart Tv Sets</td><td rowspan="2">New citizens coming from immigration</td></tr>
<tr><td>Smart Keys, Boxes</td></tr>
<tr><td>Utilisation - Data</td><td></td><td>Utilisation - Data</td><td>Consumption - Data</td><td></td></tr>
</table>

Legend: GROWING, DEVELOPING – SLOWING, STABILITY – DECREASING

Figure 20 – Elaboration by Sylvain Lafrance and Louise Hélène Paquette

Representativeness, for better engagement PUB

Innovation also means being able to reach the growing segments of the population adequately and appropriately: the younger generations Z and Y who are abandoning traditional media, as well as the immigrant population.[121]

By knowing its audiences well, radio can produce content that appeals to the target communities. Does radio and audio content meet their needs, their environmental sensitivity, and the new social norms brought about by a more diverse and inclusive society?

> Increasingly diverse podcast audiences are the new audio opportunity. We want our podcasts to meet the many needs and aspirations of our audience.[122]

Speaking at the Interactive Advertising Bureau's (IAB) 2019 Podcast Upfront, Smith said the two biggest challenges facing everyone in the media industry today are the changing ways people consume content and increasingly diverse audiences. He further noted that podcasts are a valuable way to represent – and reach – a wide range of communities.

One of the areas NPR focuses on are daily news segments like "Up First" and "Short Wave" on science and "Pop Culture Happy Hour". Similarly, it offers a wide range of weekly shows and series, the latter category including the recent "No Compromise", a six-episode show featuring a controversial group of brothers and sisters weighing in on the issue of gun control and gun rights.

Popular podcasts are also created by people of colour. For example, "Radio Ambulante", NPR's first Spanish-language podcast, tells stories from Latin America. Other examples include "It's Been a Minute", a weekly show focused on culture, "Through Line" focused on history, and the upcoming "Louder Than a Riot", a series about the connected rise of hip-hop and mass incarceration. Another illustration is "Code Switch", a weekly podcast about race and identity that dates to 2016, and saw its audience increase 200% after the assassination of black American George Floyd, killed by a white police officer in May 2020 in the event that inflamed the Black Lives Matter movement.

In North America, the inclusivity movement is noticeable across all audio platforms. Values are changing and it is time for reconciliation with indigenous peoples. Efforts are supported by funding programmes for production, and the range of audio or music content on offer is growing.

As for the Alpha generation, which is primarily on social networks for gaming, watching video or listening to audio content, how can they be engaged with the public broadcaster if these children and young teenagers do not have the opportunity to create an emotional connection with it from a young age?

> In 2020, we have turned our focus to younger audiences on our digital offering for kids, with the addition of two news services geared to audiences 13 and under – CBC Kids News and Mon actualité du jour (MAJ).[123]

Do these segments recognise themselves in the pillars of the public broadcaster's brand?

> We must do all this not as a 'project', not as an extracurricular activity, we must do this because, by definition, it is our work. It is inseparable from all our collective efforts to serve the American audience with trustworthy content on all platforms.[124]

3.5. New horizons

In 2020, American radio celebrated its 100th anniversary.[125] Timeless, it continues to inform, enlighten and entertain listeners, regardless of the platform on which it is broadcast.

In the coming years, the gradual adoption of the ultra-fast 5G network promises access to new virtual and augmented realities. These could allow audio content, news, information, radio hosting and music to take on new forms. Immersion is something that audio does well, using the theatre of the imagination. So... how do we thrive in the new realities without becoming disembodied?

Considering that robot journalists are already active in North America's largest newsrooms, how will the world of audio entertainment take advantage of speech synthesizers, now capable of modulating emotions and reproducing human voices perfectly? How will radio maintain its leadership role in the fog of misinformation?

As is currently the case in the television sector, the American platforms YouTube, Amazon and Apple and Sweden's Spotify are deploying enormous resources to occupy the new audio-sound frontier. They are inserting themselves into the value chain without really having any positive impact on the local cultural industry. Traditional audio players must establish distribution strategies to enhance the value of their content. Should they multiply distribution platforms like NPR, or bring the audience to its own platform as the CBC and BBC do?

In the shorter term, it is essential that audio content be present on all new technological interfaces, including the dashboard of new connected cars. What partnerships should be considered, starting now?

Future radio and audio content could certainly learn more from mass data. Software will soon enable content search among unstructured files such as audio clips. Biometric emotion reading and geolocation could allow journalists, presenters and DJs to decode the moods and needs of their audience in real time.[126] So, what will be the basis for 'augmented audio'? What skills need to be developed?

Local broadcasters need to be vigilant, innovative and determined to continue to occupy these new areas and allow the audio world to play its full role in all regional and national markets. If the audio sector does not act immediately, there is a strong risk that the same scenario as in TV will be repeated: where the platforms of the technological giants slowly but surely take their place in the TV landscape, creating unequal and unfair competition to domestic broadcasters and productions. How do we keep our place in the mix, between creators and consumers? What is the perceived value of local broadcasters, of Public Service?

The challenge is huge, and the stakes are high.

Notes to the Third Chapter

1 The professionals listed here are, among those interviewed, only those directly mentioned in this section. For the full list, please refer to the final acknowledgements

2 Schippers was not interviewed directly, but we report some of his thoughts shared in an exchange of letters within the EBU Strategy Community group

3 For the history of podcasts in the UK: https://podnews.net/article/history-uk-podcasts?utm_source=james.crid.land&utm_medium=email&utm_campaign=james.crid.%20land:2021-09-22

4 RTVE, Solo en Podcast: https://www.rtve.es/play/radio/solo-en-podcast/

5 Even on Rai, the first podcasts date back to 2005: CammineRai, la via Francigena https://www.rai.it/dl/portali/site/articolo/ContentItem-ae28324b-8f7f-4e69-b90b-681b583b9f9d.html

6 In addition, there are the podcasts created by France Télévisions, the public television service that broadcasts five networks in France plus the SVOD service Salto, which publishes some fifteen different podcasts with its main daily studio programmes, podcasts of certain series and sports podcasts, including the Tour de France. In this sense, television invades part of radio listening time

7 Radio France, "La Récré à Sons, l'application vocale de Radio France pour les enfants", https://www.Radiofrance.com/actualite/la-recre-sons-lapplication-vocale-de-Radio-france-pour-les-enfants

8 RTVE, "Experiencias de voz", https://www.rtve.es/rtve/voz/

9 RTL (M6 group, five television networks and three radio stations), is a French commercial radio broadcaster owned by the Luxembourg-based RTL group, which in turn is controlled by the German-based multinational Bertelsmann AG

10 EBU Technology & Innovation, "Sveriges Radio wins the 2021 T&I award", 09 June 2021, Confidential document

11 B. Richard, "Radio, music, podcasts - BBC Sounds: Public service radio and podcasts in a platform world", in The Radio Journal: International Studies in Broadcast and Audio Media, 18 (1), 2020, pp. 63-78, pp. 65-66

12 EBU, "NPO Radio 1 to go" in Radio Innovation Fund report (application 2019), confidential document outlining innovation projects receiving development funds. EBU, "NPO Radio 1 to go" in Radio Innovation Fund report (application 2019), confidential document outlining innovation projects receiving development funds

13 Ibidem

14 Daniel Freytag reports that SWR receives over 1.7 billion API requests per month

15 T. Schippers, "How NPO positions its channel vs corporate brands on third-party platforms", in EBU Strategy Community mailing list and confidential document

[16] E.N. Martin, "Can Public Service broadcasting survive Silicon Valley? Synthesizing leadership perspectives at the BBC, PBS, NPR, CPB and local US stations", in Technology in Society n.64 (2021), research carried out by executives of Public Radio and television stations in Europe and the United States, pp. 1-11

[17] An example of openness in the private sector is that of the M6 group (France), which broadcasts the group's 3 radio stations (RTL, RTL2 and FunRadio) live on the Spotify platform, as well as all its podcast offerings

[18] Sveriges Radio, "This is Swedish Radio's open API", 4 November 2020: https://sverigesRadio.se/artikel/7591703

[19] As reported by E.N. Martin in Technology in Society n.64 (2021), p. 5

[20] ARD, ARD-Zukunftsdialog: Ideen für die "Generation Zukunft, 23 June 2021: https://www.ard.de/die-ard/wie-sie-uns-erreichen/ard-pressemeldungen/2021/06-23-ARD-Zukunftsdialog-Wissen-100

[21] Speech by A. Arcidiacono at Wold Dab Automotive, 23 June 2021

[22] What is VRT Sandbox?: https://sandbox.vrt.be/

[23] EBU, "Sustainability: the real cost of development in Public Service media", 2020, p. 2

[24] Ibidem

[25] Ibidem

[26] Cf. C. Herzog - K. Karppinen, "Policy streams and Public Service media funding reforms in Germany and Finland." In European Journal of Communication, 29(4), 2014, pp. 416-432 and M. Ala-Fossi, "Social obsolescence of the Tv fee and the financial crisis of Finnish Public Service media" in Journal of media business studies, 9(1), 2012, pp. 33-54

[27] M. Bonet - D. Fernández-Quijada, "Sounds without borders: Exploring the cross-national expansion of commercial European Radio Groups", in European Journal of Communication, First Published 7 May 2021. pp. 1-16

[28] Ibidem, p. 13

[29] Ibidem

[30] M. Spinelli - L. Dann, Podcasting. The Audio Media Revolution, London, Bloomsbury, 2019, p. 8

[31] Thus Antonio Arcidiacono, EBU Technical Director, to characterise the current phase that Radio is going through

[32] It is important to ensure that consumers have access to the content, and that the robot (the artificial intelligence) recognises the brand by voice and attributes it properly

[33] Events include Travis Scott's show on the gaming platform Fortnite in April 2020 or the Whitney Houston hologram performance in Las Vegas in 2022

[34] Companies specialising in talent and artist management

[35] North American researchers distinguish between Distribution from Diffusion. For more detailed definitions, see the final glossary

[36] M. Isberto, "Ambient Computing – The Smart World", in Colocation America, 25 July, 2019: www.colocationamerica.com/blog/ambient-computing-is-the-future-of-technology

[37] Deloitte, M. Casey - J. Loucks, "Will 5G remake the world, or just make it a little faster? The promise and pitfalls of wireless's next generation", 11 August 2018: https://www.deloitte.com/global/en/Industries/tmt/perspectives/will-5G-remake-the-world-or-make-it-faster.html

38 Samsung, "Play music on your family hub smart fridge", 26 August 2021: www.samsung.com/us/support/answer/ANS00062814/#:~:text=First%2C%20tap%20Apps%2C%20and%20open,Family%20Hub%20from%20the%20list

39 R. Pomian - Bonnemaison, "Les Apple Glass pourraient vous aider à identifier les aliments avariés", in Phonandroid, 12 February 2021: www.phonandroid.com/les-apple-glass-pourraient-vous-aider-a-identifier-la-nourriture-avariee.html

40 J. Garro, "Facebook prépare des lunettes intelligentes Ray-Ban pour 2021 et planche sur la réalité augmentée, in Generation NT, 17 September 2020: www.generation-nt.com/facebook-lunettes-intelligentes-ray-ban-project-aria-realite-augmentee-actualite-1980080.html

41 K. Hiot, "Meta et Ray-Ban lancent les lunettes connectées Stories en France à partir de 329€", in Les Numériques, 14 April 2022: www.lesnumeriques.com/accessoire-pour-smartphone/meta-et-ray-ban-lancent-les-lunettes-connectees-stories-sur-le-marche-francais-n178547.html

42 R. Pomian - Bonnemaison, "Apple Glass: date de sortie, prix, fiche technique, tout savoir", Phonandroid, 26 April 2021: www.phonandroid.com/apple-glass-date-de-sortie-prix-fiche-technique-tout-savoir.html

43 Interview with Caroline Jamet, Director General of Radio and Audio and Natacha Mercure, Senior Director of Digital Audio at Radio-Canada, 24 August 2021

44 Tim Cook, Apple CEO in K. Melnick, "Apple CEO Tim Cook Says AR Technology Is «The Next Big Thing»", in VR Scout, 20 January 2021: https://vrscout.com/news/apple-tim-cook-ar-next-big-thing/#

45 Buzznews "Facebook s'associe à Ray-Ban", 29 July 2021: https://buzznews.ca/facebook-sassocie-a-ray-ban/

46 L. Lango, "Zuckerberg Believes the Metaverse Is the 'Next Big Thing' in the Tech World", in Yahoo Finances, 2 August 2021: https://finance.yahoo.com/news/zuckerberg-believes-metaverse-next-big-211607014.html?soc_src=social-sh&soc_trk=ma

47 A. Webb, "2021 Tech Trends Report, New Realities", The Future Today Institute, March 2021: https://futuretodayinstitute.com/trends/

48 F. Gabriel, "Snapchat améliore Scan, pour voir le monde en jaune", Siècle digital, 27 August 2021: https://siecledigital.fr/2021/08/27/snapchat-ameliore-scan-pour-tout/

49 Corey Johnson, CEO/Partner, Production Club in C. Johnson, "The future of live entertainment", The Future Today Institute, March 2021: https://olc.worldbank.org/system/files/3.%20Scenarios%20-%20Near-Future%20Optimistic%20Scenario%2C%20and%20Expert%20Insight.pdf

50 "La nouvelle technologie de bracelet DEL révélée lors de la tournée mondiale 2018 de Taylor Swift", in Pixmob, 8 May 2018: www.pixmob.com/fr/projets/detail/taylor-swift-reputation-stadium-tour

51 John Rowlinson, Olympic Games coverage expert, in T. Gil, "Jeux olympiques 2021: à Tokyo des technologies innovantes sont utilisées pour la première fois", in BBC News Afrique, 27 July 2021: www.bbc.com/afrique/sports-57976463

52 CES: Consumer Electronic Show at Las Vegas

53 Interview with Sam Zniber, Music Director and founder of Bodyymind pro, consultant, former Programme Director of radio stations in Europe and North America, 21 July 2021

[54] B. Jacklin, "An Introduction to 3D Sound: What is Immersive Audio?", in Immersive Audio Album, 6 September 2020: https://immersiveaudioalbum.com/what-is-immersive-audio/

[55] P. McClaine, "iHeart Hails «Virtual Reality for the Ears»", in Radio World, February 2021: https://www.radioworld.com/news-and-business/headlines/iheart-hails-virtual-reality-for-the-ears

[56] iHeartRadio, "iHeartMedia Announces Groundbreaking iHeart 3D Audio, Innovative New Slate of Podcasts Using Binaural Audio Technology", 9 February 2020: www.iheartmedia.com/press/iheartmedia-announces-groundbreaking-iheart-3d-audio-innovative-new-slate-podcasts-using

[57] Interview with Caroline Jamet, Director General of Radio and Audio and Natacha Mercure, Senior Director of Digital Audio at Radio-Canada, 24 August 2021

[58] Global Gaming Market 2022-2026, in Report Linker, May 2022: www.reportlinker.com/p04188500/Global-Gaming-Market.html?utm_source=GNW

[59] ReportLinker, "The Global Gaming Market is expected to grow by USD 125.65 bn during 2021-2025, progressing at a CAGR of 12.40% during the forecast period", in Yahoo Finances, 23 August 2021: https://ca.finance.yahoo.com/news/global-gaming-market-expected-grow-072900550.html

[60] "Short Nite: un festival de courts métrages à voir sur Fortnite", in Radio-Canada, 18 February 2021: https://ici.radio-canada.ca/nouvelle/1771759/short-nite-court-metrage-fortnite-big-screen;

[61] A. Webster, "Travis Scott's first Fortnite concert was surreal and spectacular", The Verge, 23 April 2020: www.theverge.com/2020/4/23/21233637/travis-scott-fortnite-concert-astronomical-live-report. See also IFPI, "Global Music Report 2021", 23 March 2021: https://www.ifpi.org/ifpi-issues-annual-global-music-report-2021/; Annick, "Entretien d'embauche dans le metaverse: comment ça marche?", in Réalité virtuelle, 14 October 2022: www.realite-virtuelle.com/entretien-dembauche-dans-metaverse/; S. Perez, "Roblox to host its first virtual concert, featuring Lil Nas X", in TechCrunch, 10 November 2020: https://techcrunch.com/2020/11/10/roblox-to-host-its-first-virtual-concert-featuring-lil-nas-x/?guccounter=1; J. Wickes, "Inside Ariana Grande's Fortnite virtual concert", The Face, 9 August 2021: https://theface.com/music/ariana-grande-fortnite-rift-tour-performance-gaming-vr-mac-miller-travis-scott-lil-nas-x

[62] iHearmedia, "iHeartMedia Expands Metaverse Footprint with the Launch of iHeartLand on Roblox, Where Everyone Can Be a Music Tycoon", 14 September 2022: www.iheartmedia.com/press/iheartmedia-expands-metaverse-footprint-launch-iheartland-roblox-where-everyone-can-be-music

[63] E. La Capra, "The Metaverse Concerts: Where Online Games and Music Performances Meet", in Coin market cap, November 2022: https://coinmarketcap.com/alexandria/article/the-metaverse-concerts-where-online-games-and-music-performances-meet

[64] "Un robot propulsé par l'IA remporte un prix de journalisme", in Radio-Canada, 20 October 2020: https://ici.radio-canada.ca/nouvelle/1742629/robot-sophi-intelligence-artificielle-ia-journalisme-globe-and-mail. See also: P. White, "Les robots vont-ils remplacer les journalistes?", La Presse, 1 May 2020: www.lapresse.ca/debats/opinions/2020-05-01/les-robots-vont-ils-remplacer-les-journalistes; S. Danzon - Chambaud, "De plus en plus installé, le

journalisme automatisé interroge toujours", in INA. La revue des médias, 26 February 2020, updated on 5 March 2020: https://larevuedesmedias.ina.fr/journalisme-automatise-robot-media; K. Faisal, "Forbes doubles monthly visitors with Bertie, an AI-driven CMS", in What's new in publishing, 30 July 2019: https://whatsnewinpublishing.com/forbes-doubles-monthly-visitors-with-bertie-an-ai-driven-cms/; R. Lever, "L'intelligence artificielle gagne du terrain dans les salles de nouvelles", in Le Devoir, 11 March 2019, www.ledevoir.com/culture/medias/549562/l-intelligence-artificielle-gagne-du-terrain-dans-les-salles-de-redaction; F. Brulhatour, "Radio Nova fabrique un robot animateur", in La lettre Pro de la radio, 8 January 2014: www.lalettre.pro/Radio-Nova-fabrique-un-robot-animateur_a3587.html

65 "Un robot lecteur de nouvelles, de l'agence de presse chinoise", in Le Journal de Montréal, 12 November 2018: www.pressreader.com/canada/le-journal-de-montreal/20181112/282071982926380

66 J. Johnson, "Taryn Southern on Being First to Use Artificial Intelligence to Make Album: 'Sky Is the Limit'", in The Wrap, 27 September 2018: www.thewrap.com/taryn-southern-i-am-ai-album-artificial-intelligence/

67 "Matthieu Dugal parle avec son double numérique. Un agent conversationnel, comment ça marche et à quel point est-ce autonome?", in Radio-Canada, 10 June 2021: https://ici.radio-canada.ca/ohdio/premiere/emissions/moteur-de-recherche/segments/chronique/358801/robot-conversationnel-intelligence-artificielle-donnees-numeriques

68 T. Southern, "Meet My AI Clone", in YouTube, 16 February 2021: www.youtube.com/watch?v=S8E418ZwGQA

69 P. R. Bhagyashree, "Google Podcasts is transcribing full podcast episodes for improving search results", in Hub Pack Pub, 19 March 2019: https://hub.packtpub.com/google-podcasts-is-transcribing-full-podcast-episodes-for-improving-search-results/

70 G. Nguyen, "Google brings search to podcasts through automatic transcription", in Search Engine Land, 29 March 2019: https://searchengineland.com/google-brings-search-to-podcasts-through-automatic-transcription-314798

71 A. Carman, "Spotify will auto-transcribe podcasts over the coming weeks", in The Verge, 18 March 2021: www.theverge.com/2021/5/18/22441886/spotify-podcast-transcription-accessbility-app-update

72 B. Cooley, "Is an Apple car the next iPod or the next Apple Television?", in CNET, 4 March 2021: www.cnet.com/news/is-an-apple-car-the-next-ipod-or-the-next-apple-television/

73 C. Paukert, "Audi and Disney collaborate on new type of media headed to CES", in CNET, 27 November 2018: www.cnet.com/roadshow/news/audi-meets-disney-new-type-media-ces-ar-vr/. See also "CES: Intel and Warner Bros. Immersive CES Experience Previews Entertainment's Future in Autonomous Vehicles", in Newsroom Intel, 8 January 2019: https://newsroom.intel.com/news/intel-warner-bros-immersive-ces-experience-previews-entertainments-future-autonomous-vehicles/#gs.66b4io

74 Interview with Richard Lachance, former President of Cogeco Media, one of the largest radio networks in Quebec, now Vice President, Senior Advisor, 9 September 2021

75 Signal Hill, "Radio on the move", Research on US and Canada (n = 2 000), 18 April 2021: https://signalhillinsights.com/insights/radio-on-the-move/

[76] J. Vidler, "How can radio capitalize on its ability to connect with listeners?" in Signal Hill Insights, 21 July 2021: https://signalhillinsights.com/insights/radio-on-the-move/

[77] Numeris, Nielsen, Signal Hill

[78] TNS Canada, "Mission Metrics Survey", 2017-2018

[79] F. Jacobs, "Amazon Music's Next Act?" in Jacobs Média, 14 June 2021: https://jacobsmedia.com/amazon-musics-next-act-djs/

[80] FCC: Federal Communications Commission of the United States

[81] O. Wards, "TikTok takes to the airwaves with the launch of Australian-exclusive digital radio station, «TikTok Trending on iHeartRadio»", 26 April 2021: https://newsroom.tiktok.com/en-au/tiktok-takes-to-the-airwaves-with-the-launch-of-australian-exclusive-digital-radio-station-tiktok-trending-on-iheartradio. See also: "iHeartRadio announces musicians and creators to guest host TikTok Trending", in MediaWeek", 24 June 2021: www.mediaweek.com.au/iheartradio-announces-musicians-and-creators-to-guest-host-tiktok-trending/; A. Silberling, "SiriusXM launches 'TikTok Radio,' a music channel featuring viral hits hosted by TikTok stars", in TechCrunch, 20 August 2021: https://techcrunch.com/2021/08/20/siriusxm-launches-tiktok-radio-a-music-channel-featuring-viral-hits-hosted-by-tiktok-stars/

[82] Maison d'édition Québec Amérique, "Balados lus par les auteurs", referenced on 6 July 2021: https://www.quebec-amerique.com/balados

[83] Interview with Caroline Jamet, Director General of Radio and Audio and Natacha Mercure, first Director of Digital Audio at Radio-Canada, 24 August 2021

[84] Interview with Chloé Boissonnault, General Manager, French Language Radio, Bell Media on 27 August 2021 - Excerpt from her EMBA thesis, combined HEC and McGill Universities, 2018

[85] K. Mcspadden, "You Now Have a Shorter Attention Span Than a Goldfish", in Time health and neuroscience, 14 May 2015: https://time.com/3858309/attention-spans-goldfish/

[86] A. Granata, "Comment peut-on se battre contre quelqu'un qui ne paie pas ses droits?", in Infopresse, 25 November 2019: https://www.infopresse.com/2019-11-25-comment-peut-on-se-battre-contre-quelqu-un-qui-ne-paie-pas-ses-droits/

[87] Eric Boyko, President and CEO, Stingray in "NPR Annual Report, 2019", https://media.npr.org/documents/about/annualreports/2019_Annual_Report.pdf

[88] Setra, "Apple rachète une plateforme spécialisée dans la musique classique", in Presse citron, 31 August 2021: www.presse-citron.net/apple-rachete-une-plateforme-specialisee-dans-la-musique-classique/

[89] V. De Sepausy, "Netflix France recrute dans l'édition", in Actualitté, 13 August 2021: https://actualitte.com/article/101875/economie/netflix-france-recrute-dans-l-edition

[90] "The Ascent: political destiny and the makings of a first couple", in The Atlantic, March 2015: www.theatlantic.com/sponsored/house-of-cards/the-ascent/271/. See also: T. Hsu, "Netflix Is Ad Free, but It Isn't Brand Free", in The New York Times, 16 December 2019: www.nytimes.com/2019/12/16/business/media/netflix-commercials.html; A. Højfeldt Lund, "Netflix Goes Big on Native Ads. Native", in Native Advertising Institute, 13 May 2015: https://blog.nativeadvertisinginstitute.com/netflix-goes-big-on-native-ads

[91] Interview with Caroline Jamet, Director General of Radio and Audio and Natacha Mercure, first Director of Digital Audio at Radio-Canada, 24 August 2021

92 Anyword, "Branded content: It drives revenue for 88% of publishers", in What's new in publishing, August 2019: https://whatsnewinpublishing.com/branded-content-it-drives-revenue-for-88-of-publishers-and-other-insights/

93 K. Chitrakorn, "Luxury's guide to the new rules of audio advertising", in Vogue Business, 18 August 2021: www.voguebusiness.com/companies/luxurys-guide-to-the-new-rules-of-audio-advertising

94 N. Koltun, "Campaign Trail: Estée Lauder reimagines love with audio-first stories", in Marketing Dive, 18 June 2021: www.marketingdive.com/news/campaign-trail-estee-lauder-reimagines-love-with-audio-first-stories/601542/

95 D. Griner, "Ikea Just Turned Its 2021 Catalog Into a 4-Hour Podcast", in AdWeek, 12 March 2021: https://www.adweek.com/commerce/ikea-just-turned-its-2021-catalog-into-a-4-hour-podcast/

96 Interview with Jean-Christophe Lamontagne, President of H264, on 3 September 2021

97 Interview with Jean-François Piché, General Manager of Shopico at Bell Media, and Daniel Dubois, Vice-President of Radio Sales at Cogeco

98 "Youtube Launches 'Youtube for Artists' To Make You A Better Content Creator", in Okayplayer, 2015: www.okayplayer.com/news/youtube-launches-youtube-for-artists-features.html

99 YouTube for Artists, consulted on 15 March 2020: https://artists.youtube/intl/en_us/resources/

100 Adam Davidson, author of the book The Passion Economy in T. Lorenz, "The era of audio creators has arrived", from The New-York Time, relayed by NiemanLab, 5 March 2021: www.niemanlab.org/reading/the-era-of-audio-creators-has-arrived/

101 J. Aswad, "Mint Talent Group Launched by Former WME, Paradigm, CAA Music Agents, Variety, 22 September 2020: https://variety.com/2020/music/news/mint-talent-group-agency-wme-paradigm-caa-1234778378/

102 Please not that Meta shut down its audio platforms in May of 2022: see also J. Vincent, "Facebook is shutting down its podcast platform after less than a year", in The Verge, 3 May 2022: www.theverge.com/2022/5/3/23054848/facebook-shutting-down-podcast-hub-simplifying-audio-services

103 Lindsay Fultz, vice-president at Whalar, influencer marketing agency in T. Lorenz, "The era of audio creators has arrived", op. cit

104 P. Summerfield, "NBCU's RFP shows the need to stay focused on new measurement", in Media in Canada, 24 August 2021: https://mediaincanada.com/2021/08/24/nbcus-rfp-shows-the-need-to-stay-focused-on-new-measurement/

105 A. Hiken, "NBCUniversal opens clean room to omnicom amid first-party data arms race", in Ad Age, 14 March 2022: https://adage.com/article/digital-marketing-ad-tech-news/nbcuniversal-opens-clean-room-omnicom-amid-first-party-data-arms-race/2405456

106 Interview with Mr. René Déry, Director of Research, Bell Media, conducted on 4 July 2021 and Philippe René, Senior Director, Strategic Insights, Bell Media, conducted on 17 May 2021. see also J. Lloyd, "Bell Canada acquires Environics Analytics", in Strategy, 3 December 2020: https://strategyonline.ca/2020/12/03/bell-canada-acquires-environics-analytics/

107 VV.AA., "What will the media world look like in 2030? Part 1: Digital ads, shopping, and banks", audio in eMarketer Insider Intelligence, March 2021: www.emarketer.com/con-

tent/podcast-what-will-media-world-look-like-2030-part-1-digital-ads-shopping-banks?e-cid=NL1009

108 Interview with Caroline Jamet, Director General of Radio and Audio at Radio-Canada

109 "iHeartMedia Digital Audio COO Darren Davis Announces His Retirement", in Inside Radio, 23 July 2021: www.insideradio.com/free/iheartmedia-digital-audio-coo-darren-davis-announces-his-retirement/article_03b2aa6e-ebb7-11eb-8f8b-1352676b0c74.html see also "iHeartMedia Announces New Business Operating Structure", in Bloomberg, 25 February 2021: www.bloomberg.com/press-releases/2021-02-25/iheartmedia-announces-new-business-operating-structure

110 Éric Boyko, President and CEO at Stingray in A. Granata, "Comment peut-on se battre contre quelqu'un qui ne paie pas ses droits?", in Infopresse, 25 November 2019: www.infopresse.com/2019-11-25-comment-peut-on-se-battre-contre-quelqu-un-qui-ne-paie-pas-ses-droits/

111 S. Scire, "The New York Times is making about a third of its newsletters subscriber-only", in Nieman Lab, 12 August 2021: https://www.niemanlab.org/2021/08/the-new-york-times-is-making-about-a-third-of-its-newsletters-subscriber-only/

112 S. Scire, "The New York Times is celebrating 8 million subscriptions thanks to a big boost from non-news products", in Nieman Lab, 4 August 2021: https://www.niemanlab.org/2021/08/the-new-york-times-is-celebrating-8-million-subscriptions-thanks-to-a-big-boost-from-non-news-products

113 NPR, "NPR Events Invite Listeners To Join The Conversation", www.npr.org/about-npr/727943186/npr-events-invite-listeners-to-join-the-conversation

114 Ofcom, "Ofcom Audio Survey 2022", UK, April 2022, n = 2,272 UK adults 16+ - MTM, French Canada, Spring 2022, n = 2,084 French Canadians 18+

115 Adobe Analytics, average weekly from 28 Dec. 2020 to 20 June 2021, app only

116 "Bell Média et iHeartMedia concluent un partenariat exclusif visant à amener iHeartRadio au Canada", 6 January 2016: www.bellmedia.ca/fr/salle-de-presse/presse/bell-media-et-iheartmedia-concluent-un-partenariat-exclusif-visant-amener-iheartradio-au-canada

117 Nielsen, Splunk, Google Analytics and ComScore, Fall 2019, based on deduplicated estimates

118 Infopresse, "Canada – Québec: conversation avec Eric Boyko, fondateur de Stingray, chef de file dans les domaines de la musique, des médias et de la technologie", in Printz blog, 5 December 2019: https://printzblog.com/2019/12/05/canada-quebec-conversation-avec-eric-boyko-fondateur-de-stingray-chef-de-file-dans-les-domaines-de-la-musique-des-medias-et-de-la-technologie-infopresse/

119 S. Ashworth, "iHeartMedia Partnership to Bring Curated Podcasts to French Audience", in Radio World, 10 August 2021: www.radioworld.com/global/iheartmedia-partnership-to-bring-curated-podcasts-to-french-audience

120 Conal Byrne, CEO iHeartMedia Digital Audio Group in B. Hill, "iHeartMedia partners with NRJ Group to develop and translate podcasts for French audiences", in RainNews, 10 August 2021: https://rainnews.com/iheartmedia-partners-with-nrj-group-to-develop-and-translate-podcasts-for-french-audiences/

121 MTM (Media Technology Monitoring), Spring 2021, Canada, 18+

[122] Michael Smith, marketing director at NPR in I. Liffreing, "Diversity takes center stage at the IAB Podcast Upfront", in AdAge, 11 September 2020: https://adage.com/article/digital/diversity-takes-center-stage-iab-podcast-upfront/2279936

[123] Catherine Tait, President of CBC/Radio-Canada in CBC/Radio-Canada, "Rapport annuel de CBC/Radio-Canada pour l'année 2019-2020", https://cbc.radio-canada.ca/fr/transparence-et-engagement/finances/rapports-annuels/ra-2019-2020/messages/message-de-la-presidente-directrice-generale

[124] John Lansing NPR President and CEO in NPR, "Diversity, Equity, And Inclusion Is Not A Project: It Is Our Work", 18 September 2020: www.npr.org/sections/npr-extra/2020/09/18/914455001/diversity-equity-and-inclusion-is-not-a-project-it-is-our-work

[125] The Montreal station XWA (now CFCF) of the Canadian Marconi Company is credited with having broadcast the first radio programme in North America on 20 May 1920. See also K. Macmillan, "Radiodiffusion", in L'encyclopédie canadienne, 7 February 2006 and updated 16 December 2013: www.thecanadianencyclopedia.ca/fr/article/radiodiffusion-2#:~:text=C'est%20au%20poste%20montr%C3%A9alais,peut%2D%C3%AAtre%20m%C3%AAme%20au%20monde

[126] More and more people are using voice to search instead of typing. Words spoken by a person are transformed into text searches by operating systems, browsers and applications. The ability to ask and get an answer creates new search engine optimisation systems: VSO (Voice Search Optimisation).

Chapter 4
Intersections

BY PAOLO MORAWSKI, SUMMARY BY ALLEGRA BELL

4.1. An asymmetrical, moving ecosystem

Dynamics within the ecosystem

In tracing the main characteristics of the new Audio-Sound ecosystem emerging in the US and Canada as in most European countries, one is struck by the lack of balance within the system. Although no specific data is available as to comparisons between Public Service Radio and other audio-sound industries, as evidenced by EBU analysis,[1] public Radio broadcasting appears like a tiny little David battling against an army of immeasurable Goliaths assaulting the potential of audio communication. The phenomena described and the present-futures evoked so far require Radio broadcasting to make numerous choices, many of them urgent. The considerations that follow are but one attempt to unwind the threads by trying to present the interests of the Public Service.

Within the "New World" outlined by the research, the Audio-Sound ecosystem is a significant factor. Initially, the focus was mainly on music, but now the industry has multiplied speech consumption possibilities (news, podcasts, audiobooks, Talk Radio), thus attracting audiences. Due to the complexity of the media diet of which Radio is only a significant, albeit not unique part; to the increased competition for consumer attention on the part of audio-enabled and Internet-connected devices; to the many ways in which audio content is consumed; as well as to changes in user behaviour and preferences – the most likely scenario for the near future appears to be increasingly a "hybrid" one, where old and new coexist. Tomorrow's radio will be both digital and multiplatform, as "the landscape in the last decade has become more complex. IP services – via smart speakers – have grown rapidly in the last three years and will be part of the future of Radio".[2]

Seen from a positive perspective, developments in the Audio industry are an opportunity that increases the possibilities for consumers to listen to radio products. Those who do not use analogue radio sets, clock radios and car radios make daily use of many other devices such as smartphones (socially ubiquitous), computers, tablets, smart speakers and connected Tvs. They use DAB+, radio station websites and apps, but also a variety of third-party aggregators and apps. "To realise growth", says Laura Ivey, Director of Research at Edison Research, "radio has to capitalise on its content being available beyond just a traditional radio receiver". The question is "how to convince listeners to follow radio content on different devices", rather than on "a radio".[3] All of the above is to take place against a backdrop in which digital audio consumption (Radio and non-Radio) is growing and eroding traditional over-the-air broadcast listening, albeit with wide age differences.

These are the basic findings emerging from the research so far:

- In the digital Audio-Sound ecosystem, competition is growing and fierce;
- The new ecosystem expands and enriches the listening experience of consumers, who are increasingly driven and prone to move away from traditional media;
- The future of Radio is Audio-Sound, and Radio will be part of the future of Audio-Sound;
- What lies ahead is a hybrid communication context in which live Radio is in any case destined to "suffer";[4] the extent of this suffering will depend on the identity and purpose (social, cultural, commercial) of each broadcaster;
- All analyses of the different demographic segments reveal an "infra-generational polarisation". The more mature audiences tend to remain faithful to traditional listening (Radio), those in between (yesterday's young people) move away from Radio over time, and today's young people explore all the possibilities of digital Audio and prefer on-demand Audio broadcasting platforms, but pay little attention to Radio products;
- The rate of digitally induced change remains dizzying, as disruption is a constant between and within Audio-Sound sectors, whose lines are incessantly being crossed and shaking the status quo.

Audio/Radio. (Not only) semantic overlaps

At the heart of Audio, pardon the cliché, is Audio – *Audio first*. This was theorised by Daniel Ek, founder and CEO of Spotify, which he describes as a global company focused "on this thing – Audio". His strategic manifesto, which has been known since 2019, is worth re-reading:

> "We want Spotify to continue to be at the centre of the global audio economy (…) The next decade will be defined by a more personalised, immersive audio experience (…) We know we aren't the only company thinking about or preparing for this future (…) But as we expand deeper into audio, especially with original content (…) This opportunity starts with the next phase of growth in audio pod-

> casting (...) Spotify will now become the leading global podcast publisher (...) If we are successful, we will begin competing more broadly for time against all forms of entertainment and informational services, and not just music streaming services (…) Audio not just music would be the future of Spotify".[5]

Similar plans are espoused by other large groups such as Sony Music Entertainment, Audacy or Apple. Driven by their business model, digital giants tend to take over all products and services that can relate to e-commerce. However, the constant influx of new competitors also forces Audio leaders to incessantly transform to maintain their dominance, distinguish themselves from others, and reach new audiences. Key strategies include always offering attractive content, consolidating efficiency niches, building partnerships with other suppliers and players, branching out into different areas, and experimenting with entertainment concepts.

The mingling of situations, functions, contents, data, software and hardware, products and usages undoubtedly foster the expansion of the Audio and Sound industries, which seek to encompass all possible spaces, even those that have so far been considered peculiar to Radio broadcasting. In this regard, one might wonder whether the most dynamic protagonists of Audio-Sound are not "invading" some of the elective domains of Public Service Radio in their own expansive motion, namely the areas of social and cultural relevance that pertain, say, to the objectives of social cohesion and inclusion;[6] the promotion of gender equality;[7] the drive of local and national creative forces;[8] and information.

Many are concerned about what "Radio" means today. Indeed, in the listeners' mind, "Radio" can refer to any form of audio broadcast. Therefore, to speak of a "renaissance of Audio", a "revolution of Listening", and a "revenge of the ear" is merely to acknowledge the extent to which the scope of what is meant by Radio and the context in which it operates have changed. In this respect, this study has highlighted two epochal trends: on the one hand, there is the expansion of Audio-Sound industries into the realms of Radio broadcasting, with more and more digital players intent on harvesting radio know-how for their own benefit; on the other, there is the transformation of Radio broadcasters into all-round producers of audio content, i.e. content intended for all possible media and tools – a combination of linear live Radio, live streaming and Audio-on-Demand or podcasting with a strong focus on data and technological platforms capable of integrating and making Radio products available anywhere, anytime, in any way, even through apps and smart speakers. Both movements have different timing and rhythms according to contexts, countries, and geo-audiovisual areas. The most interesting indications seem to come once again from Northern Europe, but also from North America. The United States remains the essential reference point for the entire Radio and Audio sector precisely because of its ability to anticipate many of the subsequent European developments.

4.2. What does digital innovation look like?

Taking into account the trends in audio content consumption, the new importance of speech also in social media, especially in the younger generations (GenZ and Alpha), and the development of technologies for listening quality, a number of observers believe that the years 2020-2030 will go down in history as the "Decade of Sound"[9] or the "Golden Age of Audio".[10] According to some predictions, the Decade of Sound will affect[11] the younger generations, who eschew traditional media diets and are open to the transversality and irreverence of languages, and will be connected to emerging themes that are more congenial to them: from questions concerning the future and the climate emergency, to requests for information on what will be needed tomorrow (new skills, training activities, professional figures); from questions on sustainability to curiosities concerning technological frontiers and the daily challenges of increasingly digital lives, up to generational themes (such as affection, human relations, body growth, aesthetics, rebellion/deviance/alterity). If Radio does not immediately attract them with an offer that they perceive as "interesting" by virtue of it being "different", then it will never engage them again.[12]

However, the issue of the young and very young is not the only urgent one. As populations age, awareness for the needs of older people is growing throughout Europe. Although these people do not feel "old" at all, they demand audio content and services tailored to their physical and social conditions, rhythms and interests. In this sense, an increasing number of senior citizens are expected to approach podcasts and audio books. Against this polarised backdrop, public media face the challenge of continuously adapting and evolving their digital services to retain traditional audiences and reach new ones. An analysis of the current situation (competition, audience demand) suggests that technological, production, organisational as well as editorial, format and storytelling innovations are needed. Public broadcasters must also equip themselves with digital strategies capable of drawing a distinction among different types of innovation (whether potential, strategic and tactical) and different scopes of vision (short, medium, long-term).

Innovating, experimenting, measuring

Audio-Sound has grown in parallel with the development of the Internet and digital technologies. Now, it thrives along with the conversion to digital technology, which is no longer escapable and pervades the Radio industry. Undoubtedly, technological changes impact existing media, often transforming them into new ones (e.g., moving from analogue to digital Radio). In addition, each technology has its own rationale and language, modifies habits in terms of consumption (of information, learning, entertainment), innovates attitudes of sociability and allows for more audio formats in the future. In the last decade, Radio has more decisively tackled issues such as immersive or "spatial" audio experiences; the ability to ensure mobile access to its contents and services; the possibility of customising Radio's audio offerings; and ways of integrating user-generated audio content into its publishing offerings, thanks also to simplified audio production tools, which are basically accessible to everyone.

Public radio stations now must follow a number of different paths in order to keep up with the times: they can either rely on digital giants, focus on their own "proprietary" platforms (websites, apps), or contribute to the creation of an efficient European digital platform (as an alternative to the American or Chinese ones). Many Public Radio Services are pushing in the latter direction. The topic is extremely important, also in relation to whether online platforms will be regulated by the EU. In terms of mapping and measuring consumption, there is a growing demand from the industry to improve detection technologies and adopt new metrics, as well as to equip themselves with precise systems capable of accounting for the Audio-Sound ecosystem and the media as a whole. Across Europe, many companies already tend towards global/total measurements of listening,[13] not least because, in the multimedia world of leisure contention, a vertical view of individual mediums seems anachronistic. It is vital to measure what works today in order to make the right move tomorrow.

Podcasts thrive if they are laboratories for experimentation and creativity

Podcasts are an example of flexibility worthy of further reflection. Their production has literally exploded worldwide, with tens of millions of listeners enjoying an incredible plurality of narratives, themes, genres, authors, personalities, languages and formats. Podcasts are the new hunting ground of the big digital audio players, but also of the video giants (Netflix, HBO), of the "audio storytelling" of large print media groups (the New York Times being one of them) and of companies producing "branded corporate audio". Especially in the English-speaking world, the podcast format is turning from an audio craft into an audio content industry endowed with budgets and growing competitive ideational, productive, editorial, and distribution strategies. Such strategies can respond to the narrative needs of people (falling into various consumer targets, including children) with appropriate stories, i.e., targeted, non-generic stories. They can build an *ad-hoc* audience for each theme, even seeking them out where they can be found. They can harness the power of brands to promote new talent and attract established authors (stars, personalities, celebrities) to strengthen brands. They know how to experiment with cross-media solutions (audio and video)[14] and use social media as tools for promotion and marketing, as well as for interaction with listeners.

The native podcast format thus proves to be a primary asset for the Public Service. This requires first and foremost specific publishing choices, which in the case of Public Radio must aim – as a pact with citizens – at covering areas and topics congenial to the general interest mission. Indeed, Public Services must adapt to the available technical options, creating content that can be "tailored" to the dynamics, languages and grammars of the different platforms, while at the same time bending technological opportunities to the added value that makes public audiovisual broadcasting "different".

In order to accomplish this task, it seems crucial to acquire human capital with specific skills in the field. Whether they concern programmes initially conceived for Radio broadcasters and then offered in replay or catch-up Radio (in full or in excerpts) or "digital first" or "digital only" audio content intended (first or exclusively) for streaming and on-demand consumption; long or short formats; audio serials (rapidly increasing) or one-shot works, the growth of the Audio-Sound industry is nourished by the incredible energy that is being unleashed by a vast array of artists and trailblazers, sound art enthusiasts, audio storytellers, and experts in new technologies capable of managing digital formats and files. Of course, there are also sound engineers, specialists in filming and audio editing, sound effects and acoustic ambience creators, eco-acoustic composers and arrangers, as well as podcasters, tech innovators, sound designers, sound engineers, sound editors and game sound designers. Public Service Radios have the arduous task of rapidly intercepting and enriching this new lever of digital talent, despite often lacking adequate financial resources and investment capacity, and often being tied to overly rigid production mechanisms.

Looking ahead, looking far

The future of radio stations becoming Audio industries is not only dominated by podcasts and audio books. More developments are in the pipeline. For instance, what major implications do the phasing out of FM Radio broadcasting, the move to DAB+ and the expansion to Internet-based platforms, streaming, apps and social media have? Also, what is the "right" strategy to adopt on the various social platforms?[15] Is it only a question of distribution or also an opportunity to test new formats? What will people listen to in connected cars equipped with increasingly "smart" entertainment systems, and how? Are there still development opportunities for Radio, which has been so prominent in cars so far? What formats and audio content need to be devised for smartphones, which are used for listening, talking, browsing and surfing? What Radio-Audio offering is envisaged for smart speakers, home automation and the Internet of Things (IoT), which will respond to our voice commands? What gaming rationale can Radio be enriched with? How will Radio listeners fare in the console and/or video game universe, which is one of the most popular forms of entertainment in the world? And again: what lessons can we learn from the improvement of song recommendation systems, experiments with algorithms applied to news,[16] and the development of Artificial Intelligence of "synthetic voices"? Surely, the professionals needed by Public Radio today will not be the same in 2030: how should we equip ourselves in this regard?

One point must be emphasised. Digital Audio is very different from radio broadcasting. It is a whole "other world", where each challenge corresponds to a rethinking of every single piece of content and a readjustment of the way things are done. It must, by definition, implement a bold technological and editorial diversification, one that must be invented. Digital skills, publishing skills and "unusual skills" must be brought together under a product-centred approach. Traditional hurdles, both organisational and cultural, must be broken down. Digital Audio must take risks – although it is quite clear that any necessary investment in new areas and projects will be drastically curtailed by the shortage and uncertainty of economic resources allocated to Public Services (as well as advertising constraints).

4.3. From Radio to Public Service Digital Audio

Synergies, collaborations, alliances

In fact, traditional radio broadcasters are actively reacting to the innovations of recent years. As a sign of the times, there is a tendency in many situations to differentiate the structures producing programmes for linear Radio from those dedicated to the invention of digital audio offerings, including on an organisational level. What seems to "succeed" is the experiences that do not enhance technological solutions (which are a bridge between content and recipient), but the social, cultural, information and/or entertainment value attributed to what is broadcast and listened to. Internal synergies within broadcasters succeed, as does collaboration at all levels, first and foremost the alliance among Public Radio stations. It is a matter of working together with foreign colleagues in the sphere of technological solutions to depend as little as possible on non-broadcast infrastructures and digital gatekeepers. It would be smart to come to an agreement with third parties from a collective position of strength. Within this framework, coordination is sought in terms of lobbying (to obtain a level playing field) and advocacy (e.g., the EBU's European-wide "Promote and Protect Public Service Media" actions). There is ample room to share experiences and know-how to accelerate the digital transformation of the respective Radio stations; to promote concrete exchanges (in the fight against fake news, for example); to realise co-productions; to foster, co-create and share distinctive content (music, sports); to enhance original works (such as the possibility of creating a European market for Public Service podcasts).

In any case, pooling the best international intelligence, energy and practices is necessary but not sufficient. Public Radio needs to become a major, if not the main partner for digital creators and producers (national and otherwise). The current challenges sometimes call for strengthening the cooperation of the entire on-air and online radio industry (think of the Radioplayer's function as a national aggregator) or of those interested in it (see the promotion of Radio listening in cars). It would then make sense, according to some, to start a debate with all public and private Radio operators to share servers and programme production software. This would help to reduce operators' costs, while maintaining total freedom of publishing competition. Moreover, it would make it possible to maintain direct control of the relationship between publisher and listener, and thus escape third-party mediations and algorithms. In a competitive framework punctuated by continuous waves of mergers, the possibility of establishing partnerships on targeted topics between public and commercial Radio in Europe is not taboo.

Getting found by citizens

Among the keywords of Digital Audio, some strike sensitive chords in all Public Radio: findability and discoverability, with their related concepts. In today's choices galore, directing consumers to the valuable content of Public Radio requires at least regulatory measures, dynamic and customised "guidance" tools, as well as specific technological infrastructures and "easy-to-use" interfaces. There are many sensitive issues to be addressed: from the increasing disintermediation by streaming platforms to the lack of parity between broadcasters and Internet and digital giants; from national and/or regional media systems being replaced or encompassed by "platform-worlds"[17] to the disproportionate broadening or narrowing of choices; from the increasing prominence of virtual assistants as an access point to audio and video content to the actual accessibility of data (both aggregate and non-aggregate) on users and its end use. Moreover, all Radios are now facing the challenge posed by the multiplicity of channels, networks, platforms, devices and content. In order to offer an easier browsing experience to listeners, who are often frustrated by complex and time-consuming searches, quite a few Radios are pursuing the creation of a single streaming app to serve as a gateway to their catch-up and on-demand services. But do users prefer to get all the audio content they want on one platform or in one digital "supermarket"? Or are they primarily driven by the notoriety of brands, presenters and big names?

However, the ability to get found by citizens cannot disregard knowledge of the needs and expectations of different audiences, their interests and needs (both primary and secondary), and the diversity of their behaviour and consumption habits. To this end, it is considered useful to experiment with every form of interactivity with listeners (either actual or potential), who are fragmented into many audiences. There is a renewed focus on better representing the incredible social and cultural wealth and diversity of individual communities and countries in the new digital environment. A good example of this is the 2021 campaign of America's NPR (National Public Radio), which was devised for the launch of its renewed podcast offering. The launch had the stated aim of diversifying the broadcaster's audience (the podcast audience being younger and more diverse than the radio audience). At the same time, it intended to better reflect and serve the diversity of American society. The campaign was based on four simple words: More Voices, All Ears. Among the many messages conveyed, one should be emphasised:

"Whether you want to think or laugh; reflect or act; catch the latest or grasp the greater context, [we at NPR show you] the world as it really is (…) we lift up truths that are unexpected, stories that would otherwise go untold, and voices that must be heard (…) to bring a little joy, fun, and flavor to your everyday routines."[18]

This is a communication approach, a cultural project and a publishing format that each Public Service can subscribe to.

Digital Audio storytelling – The "new normal"

In making the leap from Radio to Digital Audio, the most qualifying and distinctive point for Public Services could be the "product concept". Instead of reasoning in terms of translating Radio programmes into content for digital platforms, the priority would be to make a change in mentality, that is, to overturn the entire approach and put at the centre of one's way of moving in the digital environment a concept (or editorial idea) that will then be developed and articulated in a series of products and formats declined on the different Broadcast, Internet, Radio, Audio, social, and even Tv platforms.

Within a concept/content-centred logic, there are at least four challenges to be faced when navigating the digital universe:

- **Universality**: being accessible, visible and appealing to all citizens.
- **Accountability/Diversity**: responding to the multiple expectations of different audiences and interest groups. Trying to walk in the consumers' shoes (what they ask for and prefer) presupposes an exact knowledge of one's own community of reference; a strong relationship/interaction with citizens; and greater investment in the collection, processing and utilisation of audience data.
- **Independence**: maintaining control of the distribution of one's own digital products/content to avoid being subordinated to third-party intermediaries as much as possible.
- **Excellence/Innovation**: using all possible internal and external strengths, all the talent, and the whole range of languages and styles available to produce high-quality audio storytelling, music and speech.

Today, as in the past, most innovation is about creativity, originality, distinctiveness and the overall quality of one's content and publishing line – all factors that cannot be reduced to one single piece of technology or audio equipment.

Notes to the Fourth Chapter

[1] EBU Media Intelligence Service (MIS), "Public Service Media's Competitive Environment. Market Insights", February 2021; see also EBU Media Intelligence Service (MIS), "Media Market Trends Impacting PSM. Public Service Media Heat Map", December 2021

[2] Policy paper of UK Government: Department for Digital, Culture, Media & Sport, "Digital Radio and Audio review", 21 October 2021

[3] L. Venta, "Edison Research: Streaming Now Accounts For 12% of AM/FM Radio Listening", in RadioInsight, 23 August, 2021: www.Radioinsight.com/headlines/212062/edison-research-streaming-now-accounts-for-12-of-am-fm-Radio-listening/?utm_source=james.crid.land&utm_medium=email&utm_campaign=james.crid.land:2021-08-30 see also J. Cridland, "The people who don't listen to Radio on a Radio", 30 August, 2021: www.james.crid.land/update/Radio-on-a-Radio

[4] Mediatique, "Ownership and use of audio-enabled devices in 2035. A report for the devices working group (BBC/DRUK)", June 2021

[5] D. Ek, "Audio-First", in Newsroom Spotify, op. cit.

[6] VV.AA., Coesione sociale. La sfida del Servizio Pubblico Radiotelevisivo e multimediale, op. cit

[7] G. Haas, "How Marla Isackson Is Using Podcasts to Amplify the Next Generation of Female Voices", in Nasdaq, 22 September 2021: www.nasdaq.com/articles/how-marla-isackson-is-using-podcasts-to-amplify-the-next-generation-of-female-voices-2021 see also Ansa, "Spotify, arrivano le playlist Equal, a supporto delle donne", 30 April 2021: www.ansa.it/sito/notizie/cultura/musica/2021/04/30/spotify-arrivano-le-playlist-equal-a-supporto-delle-donne_4780458e-06dd-4f88-a5b0-057b70a725db.html

[8] One example is Spotify's Playlist Radar, which aims at "discovering" and promoting up-and-coming artistic talents using a "grassroots" approach

[9] D. Fucigna, "Il futuro dell'ascolto", 27 settembre 2021, internal discussion paper on the occasion of the publication of Future in the making, annual research on the Aesthetic and Cultural Trends Scenario by TEA Trends Explorers, September 2021: www.teatrends.net, courtesy of the author

[10] According to Edita Kudláčová, EBU Head of Radio, interviewed on 18 October 2021

[11] According to Domenico Fucigna, see note 9

[12] Matt Deegan's note on the UK in Tackling Radio's youthquake: "What's happening to young listeners and what can be done about it", in Matt on Audio, 10 November 2021: «15-19's total listening hours is down 40%. I think that's a pretty big problem (...) In other words the amount of radio that you listen to at 15 becomes the regular amount that you consume. Therefore, if you don't work to engage with young audiences early on, it will affect how you do later on»

[13] For more detailed information see: GFK's "Total Single Source Panel", Edison's "Share of Ear" concept, Nielsen's "Total Audience report" and Kantar and Ipsos's surveys in the Netherlands

[14] The Radio France investigation cell producing long and short content for all audio and video media, both on-air and online, as well as live and on-demand, is a case study: www.franceculture.fr/personne/cellule-investigation-de-Radio-france

[15] EBU Media Intelligence Service (MIS), "Public Service Media use of Social Media", January 2022, members only report

[16] In the field of news, there are many examples - SR (Sveriges Radio), BBC News Labs, Norway's NRK - of automation of websites, news clips and playlists (national and local, sports, culture, science, languages and other topics)

[17] L. Balestrieri, Le piattaforme mondo. L'egemonia dei nuovi signori dei media, Rome, Luiss University Press 2021

[18] NPR Podcasts Marketing Campaign, "More Voices, All Ears", 14 October, 2021: www.npr.org/sections/npr-extra/2021/10/14/1044042036/more-voices-all-ears?t=1636554220149

Glossary

All selected terms, used within the research, are defined here in relation to their relevance to the Audio-Sound and Radio ecosystem.

Algorithm: an algorithm is a "strategy used to solve a problem, encoded by a finite sequence of operations". Commonly, the term "algorithm" refers to a set of technologies aimed at building customised recommendations for users of an online content platform. Music platforms, for example, use algorithms to recommend a collection or sequence of tracks to their users, chosen on the basis of the user's own listening habits and those of other users with the same socio-cultural or user characteristics.

Amazon Polly: a service that transforms text into a real conversation, enabling the creation of voice-enabled applications. Amazon Polly's speech synthesis system is **NTTS** (see definition) because it uses advanced deep learning technologies to synthesise natural speech that resembles human speech.

Audio Augmented Reality: Augmented Reality experience realised only through sound stimuli. The digital technology that has been adopted for years in the field of entertainment (cinema, publishing, Tv, audiovisual, video games) makes it possible to enrich human sensory perception by means of information conveyed electronically on a device. The information and audio content provided "in addition" can be contextual to the place where the person is, for example, increasing the emotional and cognitive level of the audio experience. Areas of application include tourism and the enjoyment of artistic and environmental heritage.

Audio journalism: an activity consisting of reading aloud, for a wide audience, an article, especially if technical or complex. A special feature of audio journalism is the rigorous interpretation of the articles read. For example, statements are made intelligible through a different modulation of the tone of voice, while to make more difficult passages more comprehensible, the voice may slow down if the sentence is dense and full of subordinates or add emphasis at points that require it.

Audio storytelling: see **Digital audio storytelling**.

Audio-Sound: the first to conceive this term was probably Sibyle Veil in April 2018, when as a candidate for the presidency of Radio France she was explaining her Strategic Project (2018-2023) in her hearing at the CSA (Conseil Supérieur de l'Audiovisuel). In the first point of her programme she proposed, for Radio France, "the conquest of the Audio-Sound world" (Audio-Son) or "audiophonic world" (audiophonique). And she added: "Audio is the new challenge of the Internet (...) Audio is destined to become a dominant format (...) Sound content, produced by Radio, accompanied or not by text, images and video, is by definition a mobile offering, present everywhere in the country and beyond. In tomorrow's world, some of this content will no longer be delivered by radio stations or digital screens, but directly by voice assistants, which are "the expression of this new revolution in consumption habits". She promised, should she be appointed to the presidency of French Public Radio, a strategic investment in the production and dissemination of podcasts: "native works not broadcast on linear channels (...) original works freed from the constraints of the airwaves and from a schedule built around daily timetables". She also announced an increasing focus on cars and "connected" transport, as well as on the quality of broadcast sound; and warned of the danger posed to Public Service Radio by "Telecom and Internet operators (Netflix, Spotify, Deezer, Google, Apple) [offering] services in 5.1 or 3D sound".[1]

Audiobook: audio interpretation of a book, which differs from the digital copy (e-book). Also defined as literary works to be listened to or read aloud (by, usually, one or more narrating voices).

Augmented Reality (AR): see Audio Augmented Reality.

Binaural, dual-ear. The brain through the auditory system integrates information from both ears (sound intensity, localisation, sound quality, noise attenuation, speech clarity, competition between various sounds). Binaural listening is auditory perception characterised by the reception of sounds from both human ears and the perception of a single sound. In binaural recording (which is more advanced than stereophonic recording) the sound is recorded altogether with two microphones (analogous to auditory perception) ensuring a high degree of similarity between the sound heard live (e.g., in a concert) and the recorded sound. The binaural recording is in turn reproduced more faithfully through headphone listening. The sounds reproduced in the two earphones make listening very lifelike and the listener perceives the acoustic stimuli as if he or she were in the original recording environment of the sound event.

Blockchain: a particular type of "distributed ledger" (see **DLT**), i.e., a system in which information can be entered and read from multiple locations, without the need for central control. Blockchain-based music sharing and streaming protocols already exist, which aim to give artists more power over how their music is monetised and allow them to connect directly with fans.

Brand Personality: a characteristic of a brand identity that can be defined through people-like qualities. It is the expression of the image a company wants to give of itself to its consumers/listeners through a communication strategy based on the metaphor of the brand as a person.

Broadcasting: mode of radio transmission in which a single broadcasting station, via several repeaters (terrestrial, satellite), sends the same signal to a multiplicity of receivers or to an undifferentiated mass audience (one-to-many model).

Catch-up Radio. A system for listening or re-listening to radio programmes after they have been broadcast live. The replay of the content takes place on-demand using various digital tools connected to the Internet (computer, smartphone, tablet).

Clubhouse: invitation-only social network based on the possibility of interacting through audio chats. Structured through virtual rooms where users can exchange voice messages. When a room is closed, the messages sent are deleted. Within each room one can have three roles: moderator, speaker or listener. The range of virtual rooms is broad and allows conversations on various topics, such as talk shows, music, networking, dating, entertainment and political discussions.

Connected car: a connected car is a vehicle that, besides having access to the Internet, has sensors and can send and receive signals, perceiving the surrounding reality and interacting with other vehicles or entities. It communicates with the driver through voice information (e.g., geo-referenced traffic information) using in an "intelligent" and/or autonomous manner the vehicle's data, either collected on the network or acquired from passengers' devices or from the surrounding infrastructure (road safety and prevention systems, satellite systems). Also referred to as smart cars, the two terms are often used indistinctly, although we can understand smart cars as native cars, equipped with a SIM card for Internet connection, while connected cars are those that can be connected via external devices (e.g., USB, Bluetooth, GPS, GPRS).

Curio: an English audio-journalism platform specialising in offering quality articles and valuable analysis in audio format, read out in English (Italian is not available at the moment) by professional speakers. Content is chosen by an editorial team from over fifty of the world's leading newspapers.

DAB (Digital Audio Broadcasting): radio broadcasting standard with digital technology. Its evolution is DAB+, the technology chosen by Europe for the digital evolution of radio, which allows not only to listen to radio programmes but also to play visual content. The special features of the DAB+ system are: high quality digital audio, wide reception possibilities even in very critical situations, and the possibility of setting up efficient Single Frequency Networks. DAB+ makes it possible to send text, images, multimedia objects and data, which enrich radio content, in real time. In addition, it is possible to provide users with real-time information on traffic, public transport, parking and weather forecasts. See also **Digital Radio**.

Deepdub: app from the Israeli start-up of the same name which, through deep learning, i.e., a combination of machine translations and Artificial Intelligence, translates, dubs and adapts entertainment products in six different languages, while maintaining the original voice timbre of the protagonist.

Diffusion (Broadcast): the Anglo-Saxon meaning of the term used in this study, is the activity carried out by information or entertainment content companies, whether audio, digital, video or written, to disseminate and broadcast a variety of content to an indeterminate audience.

Digital audio storytelling: a concept that goes beyond the act of storytelling in the strict sense (with voices, sounds, noises, music) for various purposes (informing, entertaining, educating, sharing experiences and knowledge, transmitting and safeguarding individual and/or collective cognitive heritage). It covers all stages of audio storytelling development (pre- and post-production, recordings and interviews, script work, editing) as well as the set of modalities, technologies, processes and tools that enable its exploitation in the digital sphere, from podcasts to voice assistants.

Digital Audio: audio content accessible through Internet-connected devices such as computers, smartphones, smart speakers. The offer can be delivered in different formats: simulcast, WebRadio, streaming, podcast.

Digital innovation: introduction of "something new" referring to technological, organisational, cultural, social, managerial, creative novelties and changes. In the context of the Audio-Sound ecosystem, this study probed the ongoing innovation processes in European and North American Radio Broadcasting with a combination of approaches: content and editorial evolution; technologies and processes of production, broadcasting, distribution; audience detection and dialogue with the audience; alliances with platforms and synergies with third parties; communication strategies of Broadcasters; recruiting, organisation and new professional skills; inclusion and diversity; innovation in financial means. In contrast to digital innovation, the digital transformation of radio broadcasters and audio companies is more concerned with the relationships between the application of digital technology, organisational change processes, changes in corporate culture and people.

Digital Radio: the brand chosen by operators to identify the broadcasting of programmes made with the Eureka 147 standard, better known as DAB+. The Italian government, with the 2018 Budget Law, established that all radio sets, home or car, on sale from 1 January 2020 must receive both analogue FM and digital DAB programmes.

Digital-first: this means that audio content (such as podcasts) is first conceived and produced for online and on-demand enjoyment and then possibly reworked for broadcasting on live linear radio (Broadcast). But the "digital first" approach is structural and transversal to all areas of the radio station. It concerns technical, organisational, editorial, social and commercial choices. It concerns the digitisation of workflows (from information retrieval to content acquisition, filtering, storage, retrieval and processing) as much as the various forms of dialogue and interaction with listeners. By extension, digital-first characterises the priority orientation towards disseminating content and messages in the various digital environments (even through a smartphone, one can record the audio of an event and broadcast it worldwide almost live). Digital-first is therefore first and foremost in the minds of editorial staff, "makers" and audio publishers. Digital-first differs from digital-only.

Digital-only: audio content conceived, produced and distributed exclusively in non-broadcast digital environments, unlike Digital-first content.

Discoverability: indicates the degree of ease with which a content or information is visible and findable in the digital world, i.e., it can be detected and found through a search engine, within an app or on a website. It is a relevant feature in the development and design of user interfaces of audio and video platforms, which compete to offer the best user experiences.

Distribution: the Anglo-Saxon meaning of the term used in this study, is the intermediary activity between the producers, the broadcasters and the public, consisting of distributing a brand's audio, audiovisual or digital programming content by terrestrial, cable, satellite or digital means. These activities can be offered in bouquets or through subscriptions. The distributors are often aggregators. In a B2B context, it also defines activities between producers and broadcasters, consisting of giving access to audio content to people in charge of programming.

DLT (Distributed Ledger Technology): distributed ledger technologies are systems governed in such a way that multiple nodes in a network can access and make changes to specific content. All nodes in the network have the same copy of the database. Currently, DLTs represent a potential innovation for the music industry because they can challenge the centralisation and intermediation of audio content by record companies first and now by audio streaming services (see also **Blockchain**).

Ecosystem: In defining the ecosystem of the audio and sound industry, it is easiest to think of the war of all against all in which one either steps forward or backs away, one occupies the other's house or is occupied, one wins or loses, one devours or is devoured.

We see encroachments, attempts at conquest, mechanisms of harsh selection, dominance of the strongest. And yet, the competitive dynamics and the relations between the various, very different entities that make it up produce something unitary and interdependent: a digital world based on the diversity of protagonists and products, sometimes antagonistic, sometimes complementary.

GAFA: acronym used to refer jointly to the major western IT multinationals (Google, Apple, Facebook and Amazon). It becomes **GAFAM** (with the addition of Microsoft) and **FAANG**, if we mean the distribution platforms (Facebook, Amazon, Apple, Google-Alphabet) to which Netflix is added.

Generations X, Y, Z, Alpha: according to sociologist Federico Capeci's classification,[2] "to identify and define a generation, it is fundamental that that group of individuals, born in the same period of time, has lived through one or more events at the same time of life, so important as to have generated the same vision of the future and a common value system: to define a generation, therefore, the year of birth is not enough, but a social, cultural, economic, technological event is required that is so strong as to be able to originate a new way of thinking, a new mindset and a different approach to things, compared to previous generations". For convenience, with respect to year of birth, Generation X is defined as those born from the mid-1960s to the late 1980s; Generation Y (or Millennials) as those born from the mid-1980s to the late 1990s; Generation Z (or GenZ, or Centennials) as those born between 2000 and 2009. Generation Alpha is those born since 2010 who are still waiting to become a generation (but who are already united by the experience of the Covid-19 pandemic).

Immersive Audio: set of methodologies and technologies for sound reproduction that allow for three- or multi-dimensional listening, as opposed to classic stereophonic (two-dimensional) listening. The definition of Immersive Audio is attributed to Wilfried Van Baelen and was later adopted by the Society of Motion Picture and Television Engineers (SMPTE). Multiple speakers allow, in addition to 2D (horizontal) sound, to add vertical sound for a 3D spatial effect. See also **Spatial Audio**.

Impact measurement: systems for measuring what happens to listeners after they have been exposed to a programme or audio and/or video content. The general effect that is to be assessed must be at least partly the result of this exposure and is studied from a cultural and sociological point of view.

Metaverse: from "meta" and "universe". Term invented in 1992 by Neal Stephenson,[3] it exploded in 2021 with the rebranding of Facebook to Meta. But the players active in immersive experiences and virtual social spaces are numerous. Metaverses offer themselves as not yet well-defined environments of convergence of technological solutions (blockchain, NFT, cryptocurrencies, Artificial Intelligence, Augmented Reality, cloud computing) capable of fostering the interpenetration of real (physical) life and digital (virtual, simulated) reality in sectors such as: the video game industry, fashion and design, shopping and collection of digital objects, events with live virtual avatars, storytelling, marketing of big brands, 3D worlds of interaction and learning. The term Audio Metaverse denotes physical-virtual spaces based on sound, where users e.g., talk together, play/record/listen to music, sing, host discussions, and above all, explore 360° immersive audio situations.

NFT (Non-Fungible Token): the "token" is digital information recorded on a digital "distributed ledger" that cannot be modified. The "token" is associated with a specific user to represent a right: e.g., the uniqueness and ownership of an object such as a virtual work of art or an audio file, which can be reproduced indefinitely. Irreplaceable tokens are therefore certificates of digital authenticity of a digital good that can be exchanged, sold, collected. Virtual cryptocurrencies based on blockchain technology are generally used for exchanges.

NTTS (Neural Text-to-Speech): a speech synthesis technology that enables written text to be converted into speech and produces voices of even higher quality than standard digital voices because they are more natural and human-like. It is based on the combined use of a neural network (which converts phonemes into a sequence of spectrograms) and a vocoder (which converts spectrograms into a continuous audio signal).

OTT (Over-The-Top): platforms that provide, via a broadband Internet connection, a range of audio and video content, but also additional services, are commonly defined as such. The main distinguishing feature of these market players is the lack of their own infrastructure. They act in fact above the networks (hence Over-The-Top). For this reason, they have the advantage of bypassing the costs for transmission and network management (e.g., digital terrestrial or satellite), which other traditional broadcasters must bear. Another feature is the possibility of addressing a global market by reducing personnel management costs.

Personalities: personalities whose character, style and tone of voice are part of a brand's communication strategy and help define its positioning. In the case of radio, they are those presenters that listeners immediately associate with a specific brand and contribute to audience loyalty.

Personality Radio: Radio that emphasises a presenter who is well known in the country or broadcasting area of the station. Notoriety corresponds to recognised professional skills and qualities. This notoriety is linked to the radio activity but can also extend to a presence in other media (Tv, Web, press, social) or artistic activities.

Podcast: The term comes from iPod (portable digital music player launched by Apple in 2001) and Broadcast. It designates a series of original and unreleased audio "products", short or long, already recorded, distributed and usable, even asynchronously, via an Internet connection. The file can be downloaded onto a computer or portable device for listening. Strictly speaking, podcasts are "native" podcasts, i.e., intended for digital use (digital only) or digital first and only then on-air. But in usage, despite the heated debate on the subject, programmes or extracts of programmes that have already been aired and re-proposed on demand on digital platforms (catch-up radio) are also defined as "podcasts". Given the quantity and variety of podcasts worldwide, it is debatable whether they are a format, a genre or a distinct new medium. Definitions include "stories designed to fit into our busy lives".

PSM: Public Service Media are broadcasters made, financed and controlled by the public, for the public. Their production of content and services is designed to inform, educate, entertain all categories of audiences by reaching them on all platforms.

Radio aggregators: aggregators of radio streams are those platforms that offer several radio services, even of different genres, in one "container" (such as FM World or Radio-Player). Aggregators of music files and audio offerings function in the same way. It is an extension of the term aggregator, which in computer science refers to software (or Web applications) that recompile and repropose in aggregated form, for better enjoyment, information or content found on the Web.

Radio-hybrid: Radio whose audio contribution, broadcast from a traditional channel, Broadcast or Internet streaming, is enriched with content, such as images, textual information or user interaction, taken through a connected channel (e.g., Wi-Fi or 3G).

Radiovision: for some years now, this has indicated a radio evolutionary model involving a variety of visual content (video footage of live Radio in the studio, other videos, images, graphics) associated with a radio programme on different platforms (IP, Digital Terrestrial Television, satellite, smart Tv). For some, "Radiovision" is synonymous with **Visual Radio** (see definition), but while the former term emphasises Radio, the latter term accentuates its visual dimension. For those who clearly distinguish between the two, Visual Radio would be an embellishment in the form of the traditional medium of radio with the simple addition of video to the voice; on the contrary, Radiovision would be a completely new product, a way of doing Radio beyond simple sound Radio. In essence, a creative mode capable of bringing content simultaneously (simulcast) to all broadcasting platforms.

Recommendation system: algorithms, or rather a collection of Artificial Intelligence and Machine Learning technologies capable of identifying, for each listener, specific tracks, authors, programmes or albums that are potentially unfamiliar but of interest, are used to create recommendations. A recommendation system performs the function of exposing the listener to new and different content to increase participation in the content enjoyment platform and satisfaction.

Spatial audio: three-dimensional sound that envelops the user completely through earphones equipped with special sensors. Sound processing is based on dynamic detection of the position of the listener's head, i.e., tilt and rotation of the ears, but also on data from the playback device. It produces at home or on the move the surround sound or immersive audio experience of the cinema in which the signals of the various audio channels are sent to different front, centre, rear speakers.

Voice or **virtual assistant**: Artificial Intelligence software that understands human speech and allows the user to interact with a device (smartphone, smart speaker) using voice. The user carries out voice commands directly without needing to touch the device, which is often activated by a particular word or phrase and responds vocally or with sounds.

Notes

1. See. CSA, Le CSA nomme Sibyle Veil à la présidence de Radio France, 12 April 2018 www.csa.fr/Informer/Espace-presse/Communiques-de-presse/Le-csa-nomme-Sibyle-Veil-a-la-presidence-de-Radio-France
2. Federico Capeci, Generazioni. Chi siamo, che cosa vogliamo, come possiamo dialogare, Franco Angeli 2020
3. Author of Snow Crash, a science fiction book, in which he introduces the concept of the 'metaverse' to indicate a virtual world inhabited by 3D avatars of real people and to refer to a type of highly immersive virtual experience, which Big Tech has recently been planning to create for commercial purposes

Chronological table of technologies and innovations that have influenced listening

by Albino Pedroia, Sylvain Lafrance
and Louise Hélène Paquette

18th-19th century

Innovation	Year	Notes
Optical telegraph by Claude Chappe (France)	1794	First line in operation between Paris and Lille
Electric Telegraph by Samuel F. B. Morse (USA)	1840	
Phonograph by Thomas Alva Edison (USA)	1877	First instrument to record sounds on a cylinder
Gramophone* by Emile Berliner (USA)	1887	The cylinder is replaced by phonograph disc platter (1888)
First radio broadcast by Guglielmo Marconi (Italia)	1895	Wireless communications with emission of radio waves

20th century

Innovation	Year	Notes
First voice transmission via radio by Reginald Fessenden (USA)	1906	Technology pioneer Radio (AM)
Launch of the regular Radio Broadcast **	1920	With the end of the First World War a new business is born in the US and Europe
URI's first public Radio Broadcast	1924	First announcement: 'Unione Radiofonica Italiana. 1-RO, Rome station. Inaugural symphonic concert'.
Sound cinema (USA)	1927-1928	Synchronised music, sound effects, sound filming, acting
Launch of the first Tv network (NBC, USA)**	1930	Television was to be Radio's biggest competitor throughout the second half of the 20th century
Magnetic tape recording spreads (USA)	1945	The technology of transmitting recorded speeches was German
45 rpm record*		Columbia
First transistor in Bell Labs (USA)	1947	Birth of Transistor Radio (1948)

Event	Year	Details
First Tv cable network (USA)	**1948**	The pressure of Tv will force Radio to adapt. Prime time will move from the evening to the morning
Audiotape*	**1963**	Philips, Europe
Arpanet, forerunner of the Internet, is created for military purposes	**1969**	US Defense with several American Universities
First video game console	**1972**	Odyssey by Magnavox
Standard TCP* **	**1973**	Became IP in 1978. Allows all networks and devices to interconnect
Birth of Italian commercial radios, the "free radios"	**1976**	Liberalisation of the airwaves sanctioned by the Constitutional Court
First personal computer	**1977**	Apple, Tandy, Commodore 
Standard DAB	**1980**	Launched in Europe (UK) in 1995
CD audio	**1982**	
Birth of the World Wide Web* (or Web, www)**	**1989-1991**	CERN of Geneva (Tim Berners-Lee, Robert Cailliau)

Event	Year	Details
MP3 audio standard, algorithm of compression	**1991**	Today, among the most widely used audio formats for storing, disseminating and sharing
Commercial exploitation of Internet begins (USA)		Development of Mosaic (1992), the first graphic browser for the www
CERN makes the www free. Private users' computers can now access the Internet	**1993**	Unstoppable development of the www. Public access to a multitude of content
WXYC in North Carolina and WREK in Atlanta, 1994 Georgia (USA)	**1994**	First Radios start streaming their content live on the Internet
mp3 on Web* **		First popular audio format on the Web
Yahoo! first popular search engine on the www		YAHOO!
Radio HK in California is online* **	**1995**	The first Web Radio (Net Radio or Internet Radio station) launches online broadcasting
Virgin Radio (UK)	**1996**	First station in Europe to stream content 24 hours a day
Audible (founded in 1995) introduces the first digital audio player	**1998**	Created by Germany's Bertelsmann, then sold to Amazon in 2008

Launch of Google — It will become the most visited web search engine in the world

1999

Napster* ** — First system of mass file sharing peer-to-peer

Broadband (as fast Internet access) becomes an element of public policy — Enter the debates on the digital divide and the right to freedom of opinion and expression

21st century

2000

3G, third generation of mobile telecommunications — Standards for network connection

2001

iPod by Apple

2002

Standard WiFi

2003

iTunes Music Store from Apple — The digital market for music begins

Skype (Microsoft) — Revolutionised the telephony (interpersonal but especially for meetings)

Birth of MySpace, for musicians — The world's first social network worldwide

2004

The BBC is first European broadcaster to make a podcast available for download — The term 'podcasting' was born as a search for a new kind of radio or media in the wake of audioblogging

Bluetooth — Data transmission standards for personal wireless networks

Birth of Podcast Awards (USA)

2005

Birth of YouTube, platform Web 2 — Acquired in 2006 by Google

Pandora (founded in 2000) becomes Internet Radio — Use of algorithms to 'recommend' music tracks to users and personalise listening

2006

Facebook (founded in 2004) is open to all users (13+) — Virtual social networks will become an integral part of people's lives

Birth of Spotify (Sweden) — Music streaming service

Birth of Storytel (Sweden) — Audiobooks streaming service

2007

Launch of iPhone by Apple — The explosion of smartphones

Birth of Deezer (France) — Music streaming service

Generalisation of broadband

Launch of Netflix (USA) NETFLIX

Launch of Amazon mp3 Music streaming service

Founding of Qobuz (France) Music streaming service

AppStore by Apple **2008**

Amazon acquires Audible Audiobooks streaming service

Sirius XM Radio is established (from the merger of Sirius Satellite Radio and XM Satellite Radio) Become Satellite and Web Radio Service in the US

Launch of Soundcloud (Germany) Platform for distribution of music and audio content

Android **2009**

Internet users worldwide exceed one billion

Launch of the Apple iPad **2010** The tablet market is born

Mobile phones in the world exceed 5 billion

4G, fourth generation network connection Mobile technology standard for providing ultra-broadband Internet access

Broadband access is declared a 'guaranteed service' in Finland For the first time it becomes a basic communication service like post and telephone

The voice-recognising virtual voice assistant Siri is integrated in Apple products **2011** Artificial Intelligence software that permits interaction with the device (initially smartphones) using voice

Google launches Google Play Music and Google Voice Search Google Play Music

UN resolution: the same rights that people enjoy offline must be guaranteed online (e.g. freedom of expression) **2012** The debate has begun: Should the Internet be a fundamental human right?

Smartphones worldwide surpass one billion

Cortana (Microsoft) **2013** The voice assistant,introduced by smartphone, is extended to smart speakers

Lauch of Spotify in Italy		Spotify
Google Play Music in Italy		Google Play Music
For Apple, its iTunes Store has surpassed one billion of podcast subscriptions		That would be 250 thousand unique podcasts, 8 million episodes, more than 100 languages
Smart speaker Amazon Echo with virtual assistant Alexa	**2014**	Smart speakers installed worldwide will be almost 340 million in 2020
Car Play		Apple Car Dashboard OS
Launch of Tidal (Norway)		Music streaming service
Amazon Prime Music		Streaming service free for Prime subscribers
Serial (USA)		True-crime podcast with over 250 mln listeners
Apple Music	**2015**	Streaming music offer
YouTube Music		Music
Android Auto		Google Car Dashboard OS
Apple Watch		Users can listen to audio, books, music, radio, podcasts.
Launch of Idagio in Europe (also in Italy)		German classical music streaming service
Launch of Tidal in Italy		TIDAL
Launch of Apple Music in Italy		MUSIC
Spotify adds its first podcasts		
Apple AirPods (wireless earphones)	**2016**	Over 224 million units sold between 2016-2020
Google Home and Google Assistant		Smart speaker and voice assistant
TikTok (former musical.ly)		Chinese social network based on short videos
Audible in Italy		audible an amazon company
UN Resolution: cutting off citizens' access to the internet is a violation of human rights		The discussion on digital rights is raging around the world

2017

- **More than 50% of world's population owns a smartphone**
- **The turnover of music streaming exceeds the turnover of physical media in 32 countries** — Streaming and download versus CD and vinyls
- **Qobuz in Italy**
- **Amazon Music Unlimited in Italy**
- ***The New York Times* lauches "The Daily"** — One of the most popular daily news podcasts in the world
- **Spotify Originals** — First original podcasts

2018

- **Streaming reaches 75% of music sales** — US
- **The digital music market overtakes the physical one** — Italy
- **Amazon Prime Music in Italy**
- **Google Podcast**
- **YouTube Music Premium**
- **Storytel in Italy**
- **Over 50% of the world's population connected to the Internet**

2019

- **Launch of Disney+, video streaming platform (USA)** — In Europe in 2020
- **Spotify starts buying podcast companies** — Investiments in Anchor, Gimlet Media, Cutler Media-Parcast, Simmons Media-The Ringer, Megaphone...

2020

- **Spotify adds video podcasts**
- **5G, fifth generation network connection** — Downloading and uploading much faster for mobile telephony and Internet of things
- **Amazon buys Wondery** — Podcast production company
- **The podcast market is born in Italy**
- **Clubhouse** — Social audio

Amazon Music HD in Italy

DAB+ becomes mandatory on all radio receivers sold in Italy

Almost 340 million smart speakers installed worldwide

Spotify launches social audio Greenroom

2021

Purchase of Betty Labs

Amazon adds podcasts to Amazon Music

Facebook and Twitter implement audio functionality within their own platforms

Spaces (Twitter), Live Audio Rooms (Facebook)

Amazon and Spotify produce original podcast in Italy

Apple and Spotify introduce paid podcasts

Paid subscription for a selection of podcasts

Facebook, Instagram, WhatsApp, Messenger, Oculus Rift, Mapillary converge in Meta Platforms, Inc. (Meta)

Announcement of major investments in the Metaverse by Meta and other groups

Spotify produces the first original video podcast in Italy

New G
(listen to and see the show)

Almost 92% of the world's population (7.2 billion users) own a mobile phone

Almost 84% of the world's population (6.6 billion users) own a smartphone

Almost 4.9 billion Internet users

almost 63% of the world's population

TikTok suprpasses one billion monthly active users globally

2022

Devices marked with * are physical objects that any individual can buy. They do not need a terrestrial broadcasting network.

** Networks for broadcasting Radio, and then Television, must be built step by step and are dedicated solely to broadcasting Radio or Television. In order to receive Radio and Tv, the user must buy a specific device intended only for the receiving of one of the two media.

*** Internet is supported by an existing worldwide network (the network dedicated to telecommunications known as the 'telephone network') and can broadcast text, sound, video, images, links. ADSL technology allows the diffusion of audio-video content via the two-wire copper network, a network that is gradually being replaced by optical fibre. The devices for receiving the Internet are universal (with a smartphone, I can make a phone call, listen to radio and music, watch television, read the newspaper, etc.) and are generally owned by the user regardless of Internet services.

Table of figure

The Authors

Allegra Bell attends the International Master in Cinema Studies at the Universities of Roma Tre, Sorbonne Nouvelle in Paris and Goethe Universtät in Frankfurt. Her academic research focuses on audiovisuals, ranging from the audio-sound world to the study of film festivals, with a particular focus on the distribution dynamics of the sector. A film programmer and event organiser, she collaborates with various international film festivals both in Italy and abroad (Mostra Internazionale d'Arte Cinematografica di Venezia, Festa del Cinema di Roma, Leeds International Film Festival, etc.).

Tiziano Bonini (PhD in Media, Communication and the Public Sphere, University of Siena, 2008) is Associate Professor in Sociology of Culture and Communication Processes at the Department of Social, Political and Cognitive Sciences, University of Siena, where he teaches Sociology of Communication. He edited the books *Radio Audiences and Participation in the Network Society* (Routledge 2015) and *La Radio in Italia* (Carocci, 2013); wrote *La Radio nella Rete* (Costa & Nolan 2006), *Chimica della Radio* (Doppiozero, 2013), and several scientific articles in the field of Radio Studies. From 2014 to 2021 he was a board member of the Radio Research section of ECREA. He has worked as a research consultant for EBU and as a freelance writer for Rai Radio 2 and Radio24 Il Sole24ore.

David Fernández Quijada is co-founder and Director of Research at South 180, a Geneva-based consultancy specialising in futures, strategy and impact. From 2013 to 2021 he worked at MIS EBU - the Media Intelligence Service of the European Broadcasting Union, first as a senior analyst and then as a manager. He was a lecturer at the Autonomous University of Barcelona with dozens of peer-reviewed articles published in some of the most prestigious journals in the field. David's main areas of expertise are media industry and markets, with a focus on Radio and Audio, Public Service media and media policy.

Sylvain Lafrance started at Radio-Canada in 1978 as a journalist. In the fall of 2005, the CBC/Radio-Canada board of directors appointed him senior vice-president for all

French-language services of Radio-Canada with the mandate to integrate radio, television and Internet services. It was under his leadership that several major projects of the digital era were launched in Canada, including tou.tv and Bande-à-part. He left Radio-Canada in October 2011 and became an associate professor at HEC Montréal. He is also Editor-in-Chief of *Gestion* magazine, a quarterly review of major trends in the world of management.

Paolo Morawski, Rai executive, currently on the staff of President Marinella Soldi. Former Deputy Director of the Rai Ufficio Studi, he conceived and coordinated research on the Audio-Sound ecosystem and contributed to projects on social and territorial cohesion, virtual reality, digital storytelling, and Public Service algorithms. Formerly Head of Operational, Strategic and Palimpsest Marketing at Radio Rai. Co-edited with Raffaele Vincenti the volume celebrating the 150th anniversary of the Unification of Italy: *Cento voci dall'Italia. I documentari e le indagini di Radio Rai (1944-2011)*, Rai Eri 2011. In the years 1979-1994 he was author, host, and director of radio programmes for Rai Radio 3: "Appunti di volo", "Tamburi Lontani", "I documentari di Radio Tre", "Palomar", "Speciale Orione", "Orione", "Senza video", "Falsi storici", "Lo scandalo dell'immaginazione". He competed in the 1993 Prix Italia with the documentary *Lungo la via Domitiana: Laila, Gisele e i pianti di Pascal*.

Louise Hélène Paquette, after graduating in Business Administration and Marketing in Sherbrooke, specialised in Creativity Management at the Université de Montréal, then in Leadership and Collaborative Management at HEC Montréal. Today, she continues her studies in Business Intelligence. For more than twenty-eight years, she directed activities in the fields of Media Research, Marketing and Economic Monitoring. For over seven years, she headed the Competitive Intelligence department at Radio-Canada, and for the previous fifteen years, Strategic Research at Astral Media Radio (now Bell Media). Among other things, she is a research associate at the Pôle Médias of HEC Montréal. Curious about long-term trends, she decodes the business environment for her clients to anticipate changes and inspire strategic thinking. Her profession is also evolving: it is one of the subjects she teaches her students in the new Media and Digital Communications and Artificial Intelligence programme at Collège La Cité.

Albino Pedroia. Degree in History from the University Paris VIII. PhD in Communication Sciences at l'Ecole des Hautes Etudes en Sciences Sociales in Paris. Professional activity: Director of Studies then Director of Development for the Havas Group (Paris). Member of the Management Committee and Group Administrator. Director of Institutional Affairs and Head of Competition Affairs for the Canal+ group. Teaching: Economics of communication groups in the Master's Degree Digital-Media-Cinema at La Sorbonne Panthéon University. Radio activities: since 1978 creation of radio stations and contribution to the development of private radio stations. With the creation of the consulting company LabRadio in France and the collaboration with the Italian structure itMedia Consulting, all professional activity is dedicated to Radio. Co-founder and active member of GRER (Groupe de Recherches et Etudes Radio).

Marta Perrotta (PhD in Communication and New Technologies, IULM University of Milan, 2008), is Associate Professor in Cinema, Photography and Television at the Department of Philosophy, Communication and Entertainment of the University of Roma Tre, where she teaches Television and Radio Cultures and Formats, Digital Media and Tv Format Workshop. She edited the book *Factual Reality Makeover. Lo spettacolo della trasformazione nella televisione contemporanea* (Bulzoni, 2013), together with Veronica Innocenti; she has written *Abc del fare Radio* (Audino, 2002), *Il Format Televisivo* (Quattroventi, 2007) and *Fare Radio* (Audino 2017), as well as numerous articles in the field of Radio and Media Studies. With ISIMM she has edited several papers on Radio and Television. She has collaborated as an author with Radio (including RDS and Rai Radio 2) and television productions (Rai and Mediaset).

Andrea Veronese. Degree in Economics and Commerce with a focus on Political Economy from Cà Foscari University of Venice. He holds an EMAM - European Master's Degree in Film and Audiovisual Business Management from the University of Rome. He is currently in charge of the Studies and Research Office of Confindustria Radio Televisioni and teaches at the Master in Film and Audiovisual Management at the 24ore Business School. In past years, he has worked in RAI's Marketing Direction and Palimpsest Direction. As a researcher, he has collaborated with the Rosselli Foundation's Institute of Media Economics, e-Media Institute and itMedia Consulting and carried out consultancy work for Raisat, Studio Universal and Sitcom.

Alessandra Zupi. Degree in European Languages and Cultures in 2003 and Master in Marketing & Communication Management in 2017. She has been involved in market research for the media sector since 2003. She began her career in Rai Marketing Management and, after a brief stint in 2007 as Research Specialist at NBC Universal Global Networks, she returned to Rai in RaiSat Marketing for the launch project of Rai4. Since 2011, in RAI, she has been Brand Manager for Rai2 and for the specialised channels Rai Gold. As referent for the young target and for the Film, Fiction and Tv Series genres, she collaborates with Rai Fiction, Prix Italia, 01 Distribution and Rai Radio1. Since 2021, within the Rai Ufficio Studi she has been dealing with strategic issues listed by the Contratto di Servizio Pubblico.

Acknowledgements

Sincere thanks to the experts, scholars, managers and radio enthusiasts who contributed to the discussions that nourished this research in various ways. In particular:

- Adelbrecht, Eric, Consultant, former General Director RTL (Radio-Tv) Belgium
- Ala-Fossi, Marko, DRACE, Digital Radio Cultures in Europe, Tampere University
- Arcagni, Simone, Associate Professor, Culture and Society, Università degli Studi di Palermo, Italy
- Arcidiacono, Antonio, CTO & CIO, EBU
- Astorri, Claudio, radio consultant, Italy
- Benkö, Cilla, General Director, SR (Sveriges Radio), Sweden
- Bertoni, Federico, Head of Scenario Analysis, Marketing Rai, Italy
- Boissonnault, Chloé, General Manager, French Language Radio, Bell Média, Canada
- Borgnino, Andrea, Head of Raiplay Sound, Rai, Italy
- Capparelli, Elena, Director Digital Content, Rai, Italy
- Caron, Maxime, First Director New Technologies, Engineering, CBC/ Radio-Canada
- Cridland, James, Radio futurologist, consultant, essayist, Director of “Podnews”, Australia
- De Cesco, Andrea Federica, Journalist, Podcast Consultant, Art Director, Social Media Manager, Italy
- Déry, René, Director Données et insights, Bell Média, Canada
- Dixon, Graham, former Director Radio, EBU
- Dionoro, Dario, Head of Planning, Support and Special Projects, Rai Radio 1 and Rai Radio News Rai, Italy
- Espinosa de Los Monteros, María Jesús, General Director PRISA Audio, Spain
- Flaviano, Cathy, Director Culture and Society, RSI (Radio Switzerland Italiana), Switzerland

- Frédéric, Antoine, Emeritus Professor, Infocom, University UC Louvain, Belgium
- Freytag, Daniel, Developer SWR Audio Lab, SWR Südwestrundfunk, Germany
- Fucigna, Domenico, Futurologist, President TEA Trends Explorers, Italy
- Gerand, Frédéric, Director Radio and Radio & Audio Digital, RTBF, Belgium
- Gheeraert, Justine, Head of Product and New Content, Radio France
- Gire, Silvain, Founder and Director ArteRadio, France
- Godsk Hansen, Tine, DR LYD Portfolio Director, Danish Broadcasting Corporation, Denmark
- Goffin, Francis, former General Director Radio, RTBF, Belgium
- Granryd, Tomas, Vice-President Digital Committee and Head of Digital Agreements, SR (Sveriges Radio), Sweden
- Han-Choffat, Pierre, Head Radio Editor, RTS (Radio Televisione Switzerland Romanda), Switzerland
- Hernández Bravo, Javier, former Director Radio Nacional, RTVE, Spain
- Jamet, Caroline, General Director, Audio and «Grand Montréal», Radio-Canada
- Kandin, Jean-Michel, Distribution and Strategic Projects Director, Radio France
- Kudláčová, Edita, Director Radio, EBU
- Lachance, Richard, President Radio and Audio, Cogeco Média, Canada
- Lanzarone, Marco, Vice-Director Rai Isoradio, Rai, Italy
- Malo, Catherine, Vice-President Cross-Media Sviluppo, Numeris, Canada
- Marchesini, Paola, Director Rai Radio 2, Rai, Italy
- Mercure, Natacha, First Director Digital Audio Programming, Radio-Canada
- Montanari, Andrea, Director Rai Radio 3, Rai, Italy
- Petitdemange, Jean-Sébastien, Producer and Conductor RTL, France
- Reichert, Michael, Future Radio development at ARD/BR (Bayerischer Rundfunk), Germany
- Robin, Claude-Yves, Vice-President *Semaine du son*, UNESCO
- Ruben, Simon, Journalist and anchorman Europe 1, France
- Ruckstuhl, Robert, Director Radio, SRF, Switzerland
- Savoia, Sergio, Head of Web Culture and Society, RSI, Switzerland
- Schick, Serge, International Development Director, France Médias Monde
- Schippers, Thomas, Director Organisation and Video Strategy, NPO (Nederlandse Publieke Omroep), The Netherlands
- Sergio, Roberto, Director Rai Radio, Rai, Italy
- Sotis, Ilaria, Vice Director Rai Radio 1, Rai, Italy
- Tézenas du Montcel, Bruno, CEO Netia Software, Radio Programme Management
- Tricarico, Vito, graduating student of the Master's degree course in Cinema, Television and Multimedia Production at Roma Tre University, Italy
- Vianello, Andrea, Director Rai Radio 1, Rai, Italy

Published in March 2023