DIGITAL RADIO AND AUDIO
REVIEW

21ST OCTOBER 2021

ENSURING A ROBUST AND SUSTAINABLE FUTURE FOR UK RADIO AND AUDIO

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EXECUTIVE SUMMARY

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INTRODUCTION

0.01   Radio is a great British success story. It has evolved to embrace new digital opportunities to maintain its universal appeal to audiences. It has innovated to remain current, vibrant and vital. Alongside a thriving radio market, new online audio formats including on-demand music streaming and podcasts from both existing broadcasters and new entrants have emerged and grown rapidly, bringing increased choice and new habits to the UK's audio sector.

0.02   The Digital Radio and Audio Review was commissioned by the government in February 2020 with the objective of assessing likely future trends in listening and to make recommendations on ways of strengthening UK radio and audio. The Review was undertaken in conjunction with a broad cross-section of industry stakeholders and is intended to complement work already done or currently being undertaken to ensure a healthy future for a thriving UK media, such as the Cairncross Review,[1] the Online Harms White Paper and the Ofcom Public Service Broadcasting Review.

0.03   As set out in the terms of reference, this report describes sector commitments and options for future government support. The government will need to consider recommendations for future action on its part, and will publish its formal response in due course.

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1   The Cairncross Review was commissioned in March 2018 by the then Secretary of State for Digital, Culture, Media and Sport to examine the sustainability of high-quality journalism in the UK. The independent report, published in February 2019, presents an overview of challenges facing the sector, putting forward recommendations to help.

OVERVIEW

0.04 Radio remains a strong, trusted medium in the UK delivering significant public value. 89% of the population tunes in every week,[2] a figure which has remained remarkably consistent in the last decade. A feature of radio's enduring popularity is its unique ability to be simultaneously an intimate medium while remaining part of a collective experience. Radio is a valuable and integral part of the UK creative economy with a reach across all parts of the UK. The BBC invests around £500m per year on radio content,[3] excluding distribution costs, while commercial radio's annual revenues were around £703m in 2019.[4]

0.05 Radio is first and foremost a trusted medium and people turn to it for news, vital information and as a crucial source of company, especially the newly working from home. This was recently demonstrated during the Coronavirus (COVID-19) pandemic. The BBC launched temporary local stations in key areas to help communities through lockdown, enhanced its news output both on air and on-demand with specialist commissions about the pandemic and provided virtual church services. Commercial radio expanded the availability of news and current affairs during the pandemic with the launch of the new Times Radio service, the expansion of local information and the growth in news podcasts. Community radio stations continued to stay on air, in spite of the COVID-19 restrictions, providing valuable local information to their communities.

0.06 Another good example of radio's social impact is the joint industry initiative focusing on well-being and mental health, including the cross-industry Mental Health Minute campaign, and emergency programming focusing on pandemic-related content, particularly loneliness. In the absence of spectator access to live music and sport during the COVID-19 pandemic, radio delivered live performances from artists' homes and later from COVID-19 controlled venues, big music events recreated through archive material, and - for the first time - live commentary of every Premier League football game.

0.07 Over the past 10 years, listening choices have expanded greatly thanks to digital technology and in particular to the successful development of the DAB digital radio platform. As well as online listening, there are 574 stations available on DAB across the UK, in addition to thousands of online stations and streams and 333 analogue (FM/AM/MW) stations.[5] There are also over 300 analogue community radio stations which collectively reach over 1 million listeners every week.[6] Smart speakers, which emerged only five years ago, are owned or accessed by a third of all adults, and account for 6% of all audio consumption. 64% of audio consumed on a smart speaker is live radio.[7] The rapid growth of streaming and podcasts demonstrates the enduring appeal of audio and the medium of radio in a multitasking world.

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2   RAJAR Q1 2020. See para 1.22 of this report - Listening data used in the Review Report
3   BBC Annual Report & Accounts 2020/21, p50
4   Radiocentre, Advertising Revenues and Forecasts - 2019
5   Ofcom Media Nations UK 2021, p88
6   RAJAR/Ipsos/RSMB,Audience Estimates for UK Community Radio Stations, February 2021
7   RAJAR MIDAS (Measurement of Internet Delivered Audio Survey) Spring 2020

0.08

Broadcasters and technology providers have innovated to achieve continuing success, taking advantage of many new ways to reach listeners. Radioplayer is one example of successful cross-industry collaboration – a broadcaster-led, not-for-profit organisation dedicated to keeping radio listening simple on computers, smartphones, tablets and smart speakers, now with a sharp focus on in-car listening. BBC Sounds aggregates content from across its radio, music and podcast output to create a curated experience for listeners. Other platforms, including Global Player and Bauer's Planet Radio, are also extending their content and functionality. As online listening increases, the challenge for broadcasters is to ensure their strong brands continue to resonate and for the government to ensure that UK consumers continue to have easy access to UK-generated radio and audio content.

0.09

Listener behaviour is also changing with the widespread availability of connected devices giving access to almost unlimited choice, accelerated by the uptake of smart speakers; changes that appear to have gathered further pace during the pandemic. This is particularly the case for younger audiences who are early adopters of on-demand audio services, sometimes at the expense of listening to live radio. For radio to remain strong and readily available to mass audiences, it is critical that the UK audio sector continues to innovate and evolve.

0.10

Future listening projections show that radio will retain a central role in UK media for at least the next 10-15 years. While it is impossible to make entirely accurate projections too far into the future, the Review's conclusion is that live radio will still account for over 50% of UK audio listening in the mid-2030s. In terms of how radio and audio is delivered to the listener, with so many new ways to consume audio content, a hybrid future, albeit with the majority of listening being on broadcast platforms, seems the most likely for the foreseeable future. The Review examines the various distribution platforms and long term challenges of broadcasting on multiple platforms.

0.11

Radio's future must be both digital and multiplatform. DAB digital radio has given listeners a greater choice of services - with small-scale DAB opening up new opportunities for smaller commercial and community radio services. But the landscape over the past 10 years has become more complex. IP delivered services - via smart speaker - have grown rapidly in the past 3 years and will be part of radio's future.

0.12

The response to these challenges requires a strengthening of industry collaboration on future distribution including network planning, cost efficiencies and the need to progressively reduce environmental impact. There is also scope to strengthen industry collaboration to support radio listening in cars. In the home, regulatory change to support UK content providers will be necessary as more and more radio listening is consumed via new digital platforms. As radio - for the first time in its 100 years - becomes partially reliant on non-broadcast infrastructure, it will also be vital that its free-to-air route to market is guaranteed for the long-term, and new regulation, coupled with increased powers for Ofcom and possibly new competition powers, will be needed.

0.13

Radio's audience must, it goes without saying, be central to the transition to a wholly digital and hybrid future. So while an eventual switch-off of AM and FM networks will help to reduce the long-term costs of dual networks, the transition needs to work for all listeners in all parts of the UK. AM - which according to estimates calculated for the Review now accounts for just 3% of all radio listening - has reached the point where the BBC, commercial radio and Ofcom need to prepare for the retirement of national services.

However, traditional radio, including FM services, is valued by many listeners - particularly those who are older or vulnerable, drive older cars or live in areas with limited DAB or broadband coverage. On current trends, therefore, the Review's conclusion is that FM will be needed until at least 2030.

0.14

Looking at the longer term, the projected decline in analogue radio listening (which Mediatique estimates will account for just 12%-14% of all radio listening by 2030 according to their forecasts conducted for the Review[8]) means that the UK radio industry should begin preparing the ground for a possible switch-off of analogue services at some point after 2030. A failure to prepare carefully for this scenario, or to take the necessary steps as an industry when radio is in a relatively strong position, would be to gamble with the future of the UK's oldest and arguably most successful broadcast medium.

0.15

UK radio's success has produced a creative sector that is well placed to succeed as listening changes in the future. While live listening to radio will increasingly share audiences with a range of on-demand formats in the future it is clear there will still be a central role for live radio. The UK radio and audio sector has weathered technology changes in the past and is already showing how it will adapt again through innovation in formats and distribution to deliver more to audiences. With collaboration across the sector, UK government support for the changing nature of radio, and a commitment to put audiences first, who would bet against it?

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8 Mediatique - Future Audio Consumption in the UK, December 2020; and Forecast of Audio Device Trends, June 2021

CHAPTER 1 -

BACKGROUND AND SCOPE OF THE REVIEW

CHAPTER 1

BACKGROUND AND SCOPE OF THE REVIEW

1.01 Radio sits at the heart of UK life. Still among the most trusted mediums for news[9] and information, radio reaches all parts of the country; it is free-to-air and a highly valued source of entertainment and of discovery; and it is a companion to the isolated and lonely. Over recent years, live radio has been strengthened by the emergence of a small - but dynamic - independent production sector that produces content for the BBC and commercial radio as well as adding to the growing presence of UK audio content on podcast and other audio platforms.

1.02 The value of live radio and of UK-produced audio content has never been more apparent than during the COVID-19 pandemic, when a third of commercial radio listeners have reported listening to more radio than previously,10 and stations and audio content creators across the nation have responded with innovative initiatives and programming which has brought the country together.

RADIO AND AUDIO INDUSTRY RESPONSE TO COVID-19

The Mental Health Minute, marking its third year, was broadcast across the entire radio industry to 20 million listeners on over 500 stations. The unique, one-minute message on the importance of talking about mental health issues and reaching out included contributions from The Duke and Duchess of Cambridge, England captain Harry Kane, and singer-songwriter Dua Lipa.

As millions of people were forced to stay in their homes, and were isolated from friends and families, BBC local radio teamed up with manufacturers, retailers, and charity Wavelength to offer free DAB radios to the most vulnerable people aged over 70.

BBC local radio's Make a Difference campaign helped bring communities together and offered information and practical support, with initiatives including a laptop donation campaign to help pupils in need of devices while learning in lockdown.

BBC local radio launched new temporary digital radio services in Bradford, Wolverhampton and Sunderland, where COVID-19 cases were significantly increasing, to support listeners during the crisis and provide more localised information and news to the communities.

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9   Radiocentre, Breaking news: How listeners value commercial radio news, 2017 EC Eurobarometer survey 2020)
10   Radiocentre, Staying Connected During COVID-19 November 2020

The BBC's five pop music stations came together for a mass singalong to lift the nation's spirits every Thursday morning during the lockdown, and Radio 3 and Radio 4 supported artists and cultural institutions through the BBC's Culture in Quarantine initiative, keeping the arts alive in people's homes with special commissions.

Community radio stations, through the efforts of volunteers, overcame disruption and restrictions to continue to stay on air to provide valuable local information and support to their communities. Throughout the COVID-19 crisis many community stations broadcast vital public service and health announcements and news to their communities in multiple languages, and donated free airtime to provide support for local businesses and charities.

Local commercial radio stations increased their commitment to news and information significantly throughout lockdown, broadcasting 25% more news bulletins on average that lasted 28% longer.

Capital produced a special best of the Summertime Ball, simulcast live on Sky One, with special interviews from pop stars appearing on the station to talk about what the event means to them.

Children's radio station Fun Kids launched a daily Stuck at Home podcast that included ideas for activities and expert advice on how to discuss the crisis in a relevant tone for younger ones.

XS Manchester broadcast a daily 3 minute speech comedy drama based on the empty streets of the city.

Absolute 40s, a 24-hour pop up station, celebrated VE day in lockdown with hits from the decade entertaining listeners as they took part in socially distanced celebrations across the country.

The Audio Content Fund greenlit 28 new public service projects in its emergency coronavirus round, including Heart's Hometown Heroes, featuring short audio blogs from local key workers; Absolute Radio's Front Room Festival, a celebration of live music in self-isolation; and talkRADIO's Undiscussable, exploring the rise in domestic violence during lockdown.

Podcasters responded with daily content to reflect the rapidly moving news agenda and programming to support mental health and well-being.

1.03

Nevertheless, radio is facing significant challenges. While the BBC and commercial broadcasters have invested heavily in developing and improving DAB transmission infrastructure, and broadcast platforms continue to dominate both in-home and in-car audio entertainment, the options for what to listen to and the ways of listening to radio services continues to increase. Audiences are changing, distribution is changing, and connected audio and global streaming platforms such as YouTube, Amazon Music and Spotify are competing for the radio audience. The future is still a bright one - especially as opportunities open up for the audio production sector - but significantly less certain, and much will depend on industry continuing to collaborate to sustain a thriving audio ecosystem of UK-produced content.

RADIO'S DIGITAL JOURNEY

1.04 UK radio broadcasters have been on a digital journey for more than 25 years, with the launch in the mid-1990s of DAB digital radio and the more recent emergence of internet radio and online audio services.

1.05 Progress to develop radio's digital presence in the early 2000s was initially slow in spite of the development of the BBC's new digital radio services in 2002. The 2008 recession put paid to plans to develop a second national commercial DAB network (at that stage), and curtailed efforts to develop DAB coverage. The initial costs of receiver equipment and the fact that the UK was an early adopter of DAB were also factors in the slow adoption of DAB by car and vehicle manufacturers.

1.06 The government's Digital Radio Action Plan, launched in 2010, aimed to provide a clear framework to encourage the industry to work together towards securing a robust and viable digital future. By any measure, the collaboration has been successful. The financial support provided by the government alongside investments made by the BBC and commercial radio led to a major expansion of DAB network coverage between 2013 and 2018, resolving a number of network deficiencies including local DAB. Other initiatives such as the launch of the second national commercial multiplex, the extension of the Digital One commercial network to Northern Ireland and the launch of further local multiplexes since 2012 have helped to support the growth of new services over the past decade. Meanwhile, the joint efforts of the radio industry, led by Digital Radio UK and the automotive sector, have resulted in almost all new passenger cars now having DAB and DAB+ installed as standard, having been practically zero in 2010.

1.07 The development of radio's own digital network supported a longer-term aspiration to switch off older analogue networks once sufficient progress had been made by listeners to move to digital platforms. This aspiration was defined in the Digital Radio Action Plan, which proposed that the earliest date that the government could consider setting a switch-off timetable for FM and AM networks was when digital accounted for at least 50% of all UK radio listening. The government considered this question again in December 2013, when the then Minister for Culture and the Digital Economy, Ed Vaizey, confirmed that although good progress had been made, with digital representing around 35% of all radio listening, an announcement of a future switchover timetable was premature.

1.08 Since 2013, the partnerships developed as part of the Digital Radio Action Plan have continued to support steady growth, boosted by the transition of radio listening in-car and more recently by the emergence of connected audio devices. In 2018, digital listening passed the 50% of all radio listening threshold. In response, the then Minister for Media and the Creative Industries, Margot James, announced in May 2019 that the government would set up a broad-based digital radio and audio review to help guide collective thinking about the direction of travel with digital and analogue broadcasting in the light of the wider changes in listener behaviours.

THE REVIEW

1.09 Over this time radio listening, and audio listening more broadly, had changed with the growth of IP-based services. In light of this, the Review was established in February 2020 and tasked with considering a range of longer-term issues facing radio in the next 10-15 years as online technologies mature, with a view to strengthening and protecting the core public value that radio provides to the UK.

The Terms of Reference were to:

    a.   Investigate future scenarios for the consumption of UK radio and audio content on all radio and online platforms and assess the impact of these scenarios on access to UK radio services;

    b.   Assess the impact of likely models of future listener trends on current and future distribution strategies for UK radio groups and industry;

    c.   Make recommendations on further measures and collaborative actions to strengthen the UK radio and audio industry for the benefit of all listeners and to promote innovation.

1.10 Although the Terms of Reference make no explicit mention of a future switchover or setting of a future switchover timetable, a key issue for the Review was the progress of the evolution of radio listening from analogue to digital radio, which would underpin collective advice to the government on how long analogue radio services would be needed. It was clear from the outset of the Review that while digital radio listening remains strong, with growth of DAB+ services and the rollout of small-scale DAB licences, this is no longer a simple question of an analogue-to-digital switchover. Instead, consideration was needed of the present mixed ecosystem of: DAB listening and rapidly growing IP listening, increasingly via smart speakers; and on-demand options including music streaming and podcasts.

APPROACH TO THE REVIEW

1.11 The Review has been led by the Digital Radio and Audio Review Steering Board ("the Steering Board"), composed of senior representatives from the BBC, the main commercial radio groups (Global, Bauer and Wireless), Arqiva, Radiocentre, techUK, the Society of Motor Manufacturers and Traders (SMMT), and chaired by the Department for Digital, Culture, Media & Sport (DCMS). The Secretariat was provided by DCMS supported by resources from Digital Radio UK (DRUK) and industry, with Ofcom acting as an observer.

1.12 Three main industry working groups were established. These working groups - which drew in a wider range of industry stakeholders and input - were asked to consider different aspects essential for the future development of radio and audio, namely:

- Changing listening habits and how the industry should evolve to stay relevant;

- The changing device and automotive environment;

- Future network coverage and planning.

1.13 Additional sub-groups were formed to look at two specific areas highlighted as priorities during early discussions:

- The impact of online audio platforms, aggregators, smart speakers and voice-activation on the future of radio and audio;

- Ensuring the widening of opportunities for talent from diverse backgrounds to enter the industry.

1.14 The approach taken has been to try and reach a cross-industry consensus on the issues considered, and to reflect this in the conclusions and recommendations. This approach means that the focus has been on issues where there is a common or collective cross-industry interest or where a common industry-wide approach to issues is more likely to deliver benefits to the sector as a whole. There have been a few areas where there has been disagreement, and where there are dissenting comments, these are reflected in the text.

1.15 The analysis and recommendations have been underpinned by the commissioning of new research, which has provided additional insight on a number of the emerging trends and changes in listener views and behaviours. In all, nine separate studies were commissioned, and all are published with this report.

RESEARCH REPORTS AND STUDIES COMMISSIONED BY THE REVIEW

Mediatique - Future Audio Consumption in the UK, October 2019; Update December 2020;
Mediatique - Ownership and use of audio-enabled devices in 2035, June 2021;
(Mediatique - Explainer - Radio and Audio Reports)

Futuresource - Trends in Audio and Radio Consumption in the UK, February 2020

Plum Consulting - Wireless Delivery of Audio Services, January 2021

PwC - Consumer attitudes to devices and consideration to purchase, February 2021

Dynata - Ethnic minorities radio listening project, March 2021

Ethnic Opinions - Ethnic minorities audience perceptions and consumption of radio and alternatives, April 2021

Community Radio Audiences and Values, February 2021

RAJAR/Ipsos/RSMB - Audience Estimates for UK Community Radio Stations (April 2019 - March 2020), report prepared April 2021

1.16 The Review has also taken views from a number of industry stakeholders through a series of stakeholder engagement sessions and through discussions with key industry groups, including liaison with the UK audio production sector and a very detailed engagement with the manufacturing industry about the future prospects for DAB radio technologies. This approach - along with specific research commissioned by the Review - has enabled identification of issues that are likely to shape the way that radio develops over the next 20 years. In particular, it was identified that:

- Radio continues to see a significant gap in terms of its use and engagement with different ethnic communities. While broadcasters have themselves carried out some research into the needs and interests of these communities (to drive programme development), there was no comprehensive research on the reason for the continued under-indexing and on how the radio industry could better serve all audiences. As a result, broadcasters and DCMS jointly funded two research projects (by Dynata and Ethnic Opinions), which are both published with this report. The two reports have provided the basis for recommendations to build on existing initiatives to make radio and audio more diverse and to increase the focus on sector training and skills.

- The emergence and growing use of connected audio devices like smart speakers, and the shift of platforms into the radio and audio space, has started to impact on the strategy of UK radio broadcasters. A separate working group was established to look at this issue, and had the benefit of access to research by Frontier Economics (commissioned by Bauer Media Audio) to look at transfer of value between UK content providers and platforms,

and how the increased penetration of platforms to carry radio services and related audio content could influence the future economics of the sector. In addition, Radiocentre commissioned MTM to examine issues of prominence and access on these platforms. This work has resulted in new thinking about the future challenges and the need for the government to consider extending protections being discussed for other digital markets to support UK radio and audio.

1.17 In addition, the government's commitments to reduce greenhouse gas emissions and set stricter targets to achieve reductions by 2035 apply to all industries, including radio broadcasting. The first cross-industry assessment of energy use by radio broadcasting networks is an important step, drawing on new work carried out by BBC R&D. This underpins an important recognition of the need to manage emissions across broadcast and receiving devices, and led to recommendations on the process for retiring analogue networks after 2030 in a way which minimises the impact of listeners switching to more energy inefficient devices.

INTERNATIONAL ASPECTS

1.18 International trends affecting the development of digital radio in other countries were also examined, noting that the UK remains ahead of many other large nations in terms of the transition to digital, but that other online trends (including the growth of smart speakers) are prevalent around the world and could inform a view of likely future trends in the UK. Full details of these trends are set out in a report prepared by Digital Radio UK, which is also published alongside this report.

1.19 This report (Radio and Audio Review: International Market Report, September 2021) shows that across Europe, sales of DAB+ radios and digital radio listening are continuing to grow, with France and Germany launching national DAB+ multiplexes and countries beginning to introduce laws to mandate the sale of digital receivers; Switzerland has announced plans to implement a formal analogue-to-digital switchover. The strong and sustained shift towards DAB+ across Europe, and particularly in Germany, France and Italy is a positive development for UK radio, creating opportunities to partner with European broadcasters and audio producers, particularly on issues such as research and development and on cross-industry initiatives in areas where there is a common interest.[11]

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11   For example, the EBU, AER and EDRA recently co-signed a letter highlighting the growing dominance of digital voice assistant platforms, calling on the co-legislators to include them in the Digital Markets Act.

TIMING OF THE REVIEW REPORT

1.20   It was initially intended that the Review report would be delivered in March 2021, but the ongoing impacts of the COVID-19 pandemic meant that this date was pushed back. It was agreed by all stakeholders that doing so would enable full consideration to be given to all issues while also taking account of some of the effects of COVID-19 on the radio industry - including the disrupted home-to-work travel caused by the lockdown, and the greater level of homeworking which has increased demand for radio and audio services.

1.21   The conclusions of the Review identify a broad range of measures that can help UK radio and audio continue to thrive, to deliver public value, and to grow the UK creative economy in sectors with significant global opportunity. With the right action being taken now by both government and industry, radio and audio in the UK will continue to be world-leading for some time to come.

LISTENING DATA USED IN THE REVIEW REPORT

1.22   At the time of writing the Review Report the most recent published listening data available is for Q1 2020 following the suspension of the RAJAR survey, which uses face to face methodology, in March 2020 due to COVID-19 restrictions. The Review, therefore, refers to RAJAR Q1 2020 and MIDAS Spring 2020 data in its analysis but notes that listening patterns and metrics will inevitably have shifted in the intervening months and reflects alternative more current data points where possible. The Review has not sought - unless this is absolutely necessary - to substitute alternative data for data that would otherwise have been available from RAJAR.

ACKNOWLEDGEMENTS

1.29 The Review looked beyond radio with a focus on the UK's audio production sector. We have been greatly helped here by Tim Wilson at AudioUK and from roundtable sessions with Bernard Achampong, Neil Cowling, Tim Hammond, Will Jackson, Karen Pearson, David Prest and Kellie While. Our thanks also to the broadcasters and producers, over 50 in total, based in the Nations and English regions, who attended the roundtable meetings and shared their views and perspectives, which have proved invaluable.

1.30 The Review draws extensively on three research reports that are the basis for much of the analysis on future market trends and we are grateful to Mathew Horsman and the team at Mediatique. We are also grateful to Ford Ennals from Digital Radio UK for his insights into the evolving nature of the UK radio and audio market and for providing the overview of audio and radio trends in international markets which forms one of the documents published with the report.

1.31 The Review looked in depth at the long-term implications of the emergence of new smart speaker technologies and related topics around securing radio's access to market in this emerging new environment. We would like to thanks all those who participated in the discussions on smart speakers to help us get a deeper insight into market trends and the challenges facing the UK radio and audio industry in particular, Andrew Crowfoot and James Hickman (Global), Mukul Devichand and Ben Rosenberg (BBC), Philip Pilcher (who coordinated some significant external analysis and related report drafting) and Shana Hills (Bauer), and Jimmy Buckland (Wireless).

CHAPTER 2 -

LISTENERS AND ENSURING THE APPEAL OF RADIO AND AUDIO

CHAPTER 2

LISTENERS AND ENSURING THE APPEAL OF RADIO AND AUDIO

Supporting listener choice, sustaining local broadcasting, and ensuring the industry offers the widest opportunities to the broadest audiences and workforce

INTRODUCTION

2.01 Radio and audio listening habits are evolving, influenced by the development of new services and the growing adoption of digital devices: not just DAB radios, but also smartphones and smart speakers, which have given access to a huge array of online audio. Nevertheless, the radio habit remains strong, with 9 in 10 adults in the UK tuning in for an average of 20 hours a week.[12] As of Spring 2020, live radio accounted for 72% of all UK audio listening, with on-demand music streaming accounting for 14%, followed by podcast listening at 4% and other forms of audio including listen again, audiobooks, online tracks, vinyl and CDs accounting for the remaining 10%. Online listening has grown in particular among younger audiences with on-demand music streaming accounting for 44% of 15-24s listening time and podcast listening accounting for a further 5%.[13]

SHARE OF AUDIO % (EXCLUDING VISUAL)
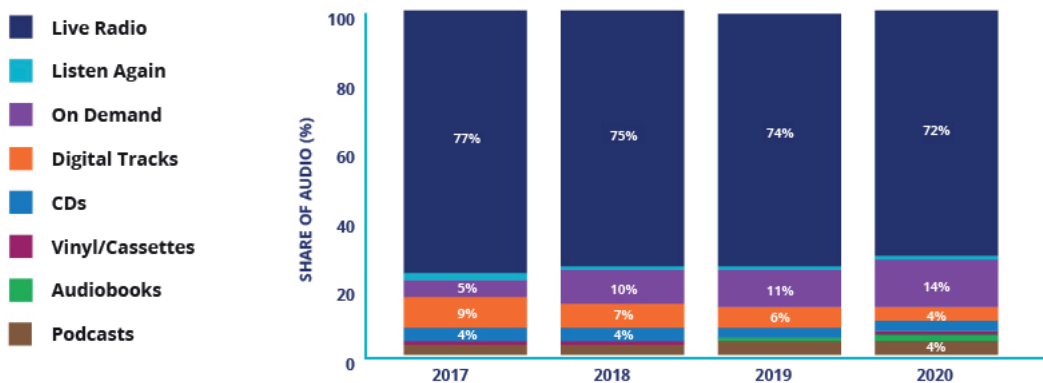
RAJAR MIDAS - Spring 2017, 2018, 2019, 2020

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12   RAJAR Q1 2020
13   RAJAR MIDAS Spring 2020

2.02 The Review formed a Listener Working Group - including research specialists and stakeholders from across the sector. This set out to:

    a. Understand the changes in listener behaviour in much more detail and understand the factors driving these changes;

    b. Assess how these changes might develop over the next 10-15 years;

    c. Understand how well radio was serving different audiences and what actions might be appropriate to help UK radio and audio develop and strengthen choice for all audiences, particularly those groups that felt under-served by radio services.

2.03 A review of an extensive body of existing research on radio and audio listening, including research carried out by the BBC, Radiocentre and larger commercial broadcasters, enabled the identification of evidence gaps and led to the commissioning of new research in two areas to help inform the understanding of current and future trends:

- An assessment of community radio listening across the UK, consisting of quantitative research to provide insights into community radio audiences, and an audience measurement project using existing RAJAR data to derive an estimate of reach for all community radio stations combined.

- Detailed research into radio and audio listening among ethnic minority audiences, consisting of a quantitative study examining the differences in radio listening between different ethnic communities, and a qualitative study on the attitudes and views towards the current provision of UK radio services amongst different groups of ethnic communities.

The findings of these two research projects are discussed in detail later within this chapter and have been published alongside this Report.

VALUE OF RADIO AND UK AUDIO

2.04 Radio remains a very powerful medium which establishes a direct and personal relationship with each listener. While the proliferation of devices such as smartphones and tablets has made it possible for listeners to download and/or stream content on the move, the intimate feel of radio and its ability to mix news, information, music and entertainment have ensured its enduring popularity. Radio also plays a vital role in providing high-quality, trusted local news and information.

2.05 Radio and audio provide a unique relationship with the listener and have the power to gain a loyal and committed following even in an age of so many media distractions. The mixture of private and public funding and community support, plus the PSB remit of the BBC and the wide breadth of commercial and community radio services, means that every radio audience taste can be catered for. Added to this

now are the new digital audio formats of podcasting and audiobooks, which serve to further engage the listener and enable them to take a deeper dive into their areas of interest, as well as growing the opportunity for new and diverse presenter and production talent to break through. There is also a vibrant independent audio production sector with companies based around the UK, delivering through its content a wide range of ideas, stories, voices and talent to broadcasters and digital platforms.

2.06   There is always more to do to ensure that radio and audio are available on the latest new devices, including in the new generation of connected cars, but what is not in doubt is the ability of radio services and also new forms of audio content to create an environment for people to enjoy, learn, and feel a sense of community.

2.07   Radiocentre's research[14] consistently shows that radio is one of the most effective advertising media, another demonstration of audiences' engagement with the medium. Podcast ad revenues are forecast to more than double in the UK over the next few years, which is a further sign of audio's ability to gain audiences' attention.

HOW LISTENERS ACCESS AUDIO

2.08   Listening on traditional FM/AM and DAB radios still dominates how listeners are accessing radio and other audio content, accounting for 23% and 33% of all audio consumption respectively, followed by smartphones on 17% as the next most popular audio-receiving device.[15]

AUDIO (EXCLUDING VISUAL) BY DEVICE SHARE % FOR ALL ADULTS
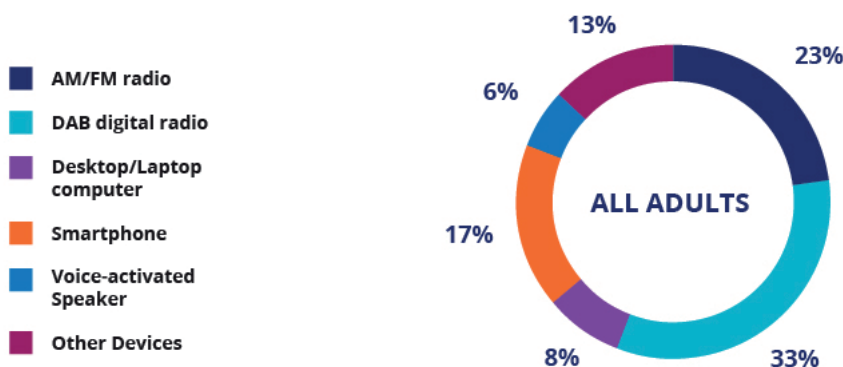
'Other' devices includes Tablets, CD Players, Portable music players, Record players, TVs etc RAJAR MIDAS, Spring 2020

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14   Radiocentre, RAB, Radio the ROI Multiplier
15   RAJAR MIDAS Spring 2020

2.09

However, there are important differences between age groups which suggest this will change over time. Among 15-24 year olds smartphones are the first choice, accounting for 38% of audio consumption, with DAB accounting for 22% and FM/AM radios just 11%. Among 25-34 year olds, smartphones account for 27% of audio consumption, against 26% for DAB radios and 19% for FM/AM. In contrast, among listeners aged 55 and over, DAB radios account for 41% of all audio consumption and FM/AM radios a further 31%, with smartphones accounting for only 5%.[16]

AUDIO (EXCLUDING VISUAL) BY DEVICE SHARE % FOR ALL DEMOGRAPHICS (15-24, 25-34, 35-54 AND 55+)
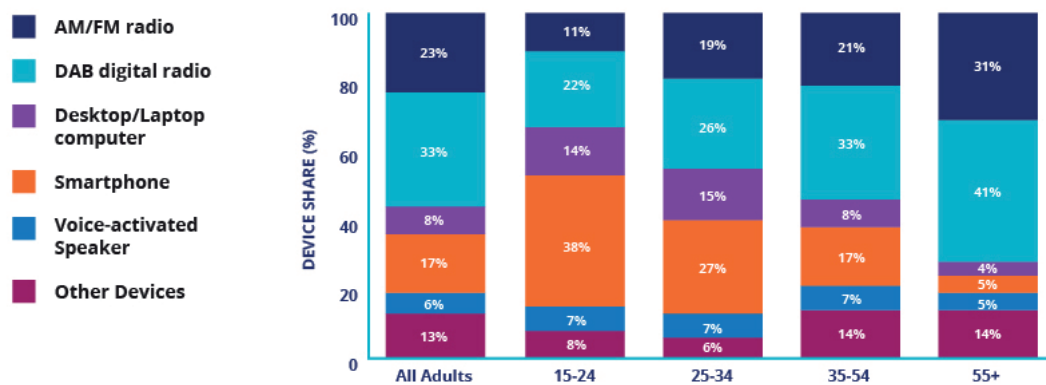
'Other' devices includes Tablets, CD Players, Portable music players, Record players, TVs etc RAJAR MIDAS, Spring 2020

2.10

According to the most recent available MIDAS data, voice-activated smart speakers currently account for 6% of all audio consumption, with 33% of adults owning or accessing a smart speaker.[17] However, their role in radio, and audio listening, is growing rapidly, and according to Ofcom's latest (and more recent) Technology Tracker (Q1 2021), as many as 42% of UK adults now regularly use a smart speaker.[18] Listening to audio is the most popular use of smart speakers by a significant margin, with 60% of all owners using one to listen to live radio, though with significant differences between age groups. Use of smart speakers to listen to the radio falls to 34% among 16-34s but rises to 67% among those aged 54 and over. In contrast, 67% of all smart speaker users listen to music via a streaming service on their device, rising to 77% of 16-34s but dropping to 55% of those aged 54 and over. This compares to the next most popular uses of 'get weather report' at 45% of all users and 'searching for information online' at 39% of all users.[19]

Smart speakers are explored in greater detail in Chapters 3 and 5.

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16   RAJAR MIDAS Spring 2020
17   RAJAR MIDAS Spring 2020
18   Ofcom Technology Tracker 2021, p434: QV11. Do you or does anyone in your household have a smart speaker which can respond to voice commands like "Alexa" or "Hey Google" or "Siri"?
19   Ofcom Technology Tracker 2021, p461. QV4. Thinking of your household's smart speaker -- such as an Amazon Echo, Google Home, or Apple HomePod... Which of these do you use your smart speaker for?

2.11 Broadcast radio services continue to dominate in-car listening - which accounts for 24% of all live radio listening - and remains by far the most important platforms for live radio listening in-car. According to RAJAR Q1 2020, FM/AM accounts for 56% of all listening in cars, DAB for 42%, and IP for 2%. Live radio dominates in-car listening, accounting for 82% of all in-car listening hours.[20] However, the growing availability of connected audio services in cars (via phone mirroring or natively) represents an increasing challenge to the prominence of radio in the car as streaming services are presented alongside or even more prominently than radio services. These issues are explored further in Chapters 4 and 6.

FUTURE RADIO AND AUDIO CONSUMPTION

2.12 In order to understand likely future trends in radio and audio consumption the BBC, commercial radio groups and Arqiva commissioned Mediatique to model potential scenarios for the audio market in the UK between now and 2035, with a focus on forecasting the likely impact on live/broadcast radio. A summary of this modelling is included in Mediatique's report for the Review - Future Audio Consumption in the UK (October 2019, updated December 2020). Mediatique analysed both the trends in the listening shares of different forms of audio, including live radio, on-demand music streaming and podcasts, and also how listening on different platforms, particularly FM, AM, DAB and online/IP platforms, would be likely to evolve in the long term.

2.13 Based on a simple extrapolation of current behaviours adjusted for demographic changes, Mediatique estimated that live radio listening would decline from its current share of 72% of all audio listening to around 66% by 2035. However, this does not take account of likely changes in behaviour as adoption of new digital platforms and services grows. Mediatique modelled a number of scenarios, ranging from a "moderate change" scenario, in which growth in take up of new devices such as smart speakers and connected cars grows less rapidly, consumers retain legacy behaviours and late adopters eschew patterns of use seen today among younger early adopters; through to a "radical acceleration" scenario in which take up of smart online devices accelerates both in the home and in-car, and consumers switch their audio consumption to online services at a much faster pace. Mediatique developed and refined a base case between these two scenarios.

2.14 Based on these scenarios, Mediatique estimated live radio's share of total audio consumption would be between 46% and 58% by 2035. The base case estimate was 53%, suggesting that live radio will continue to account for over half of all UK audio consumption in 2035. Even in the most aggressive scenario, Mediatique forecast that live radio would remain the single largest form of audio consumed by listeners in the UK, significantly larger than either on-demand music streaming or podcasts.[21]

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20   RAJAR MIDAS Spring 2020
21   Mediatique, Future audio consumption in the UK (update), December 2020 p8

ADULTS 15+ SHARE OF AUDIO CONSUMPTION - SERVICE TYPE (% OF HOURS)
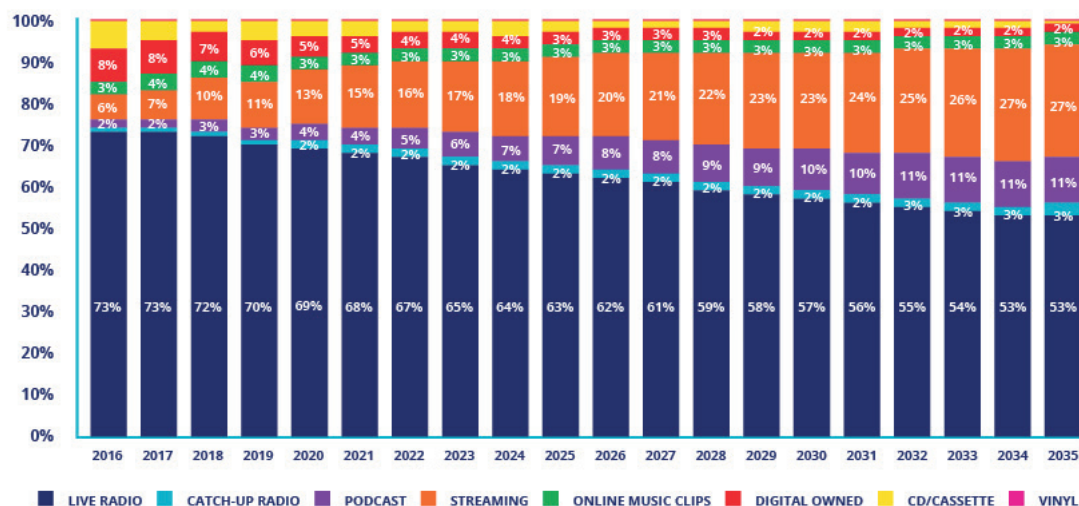
Source: Mediatique Future audio consumption in the UK (update), December 2020

2.15 Mediatique also developed a number of scenarios for how listening by platform might develop. The recent, rapid growth in adoption of smart speakers, and the development of connected car technology, means that there is a great deal of uncertainty over how rapidly listening on online platforms will grow. It is clear from Mediatique's analysis that online/IP platforms will grow in importance but that the main radio broadcast platforms (FM and DAB) will also remain very important for listeners.

2.16 Mediatique estimated that online/IP platforms could account for 32%-40% of all live radio listening by 2035,[22] up from 14% in 2020. Although AM/FM listening is expected to continue to decline, broadcast platforms will continue to account for 52%-65% of all live radio listening in 2035.[23] Again, even in the most aggressive scenario, in which consumer adoption of connected devices continues to grow and listening habits change rapidly, broadcast platforms are still expected to account for more than half of all radio listening by 2035. This analysis also underpins the ongoing importance of FM to many listeners. While digital platforms now account for 59% of all live radio listening,[24] FM listening is expected to still account for around 12-14% of all live radio listening in 2030 and 8-10% of all live radio listening in 2035, according to Mediatique.[25]

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22   Mediatique, Future audio consumption in the UK (update), December 2020, p13
23   Mediatique, Future audio consumption in the UK (update), December 2020, p33
24   RAJAR Q1 2020
25   Mediatique, Future audio consumption in the UK (update), December 2020, p10/Mediatique ownership and use of audio-enabled devices on 2035, June 2021, p33

MEDIATIQUE: SUMMARY OF OUTCOMES, RADIO LISTENING BY PLATFORM

%	AM/FM	DAB	Digital TV	IP
2020[26]	41.4%	40.2%	4.4%	14%
2030	12- 14%	48-53%	3-4%	29-36%
2035	8 - 10%	49-55%	3%	32-40%

WHAT LISTENERS WANT FROM AUDIO SERVICES

2.17 Audience research consistently shows that listeners' audio needs are both practical and emotional, including the need for mood enhancement, to know what is going on, to feel part of something and to feel connected.

2.18 Research conducted by Radiocentre in November 2020[27] reaffirms the valuable role live radio plays. In the midst of the coronavirus pandemic, a third of commercial radio listeners reported that they were listening to more radio than previously. Reasons given centred on radio's ability to satisfy both functional and emotional needs. In terms of function, 90% said they were listening to more radio because it kept them in touch with the world, while 89% said it kept them informed and 68% said it delivered trusted news. More radio listening was also happening because radio kept listeners company (84%), improved their mood (85%), and made them feel happy (82%).

THE ROLE OF RADIO IN LISTENERS' LIVES: FUNCTIONAL AND EMOTIONAL NEEDS (% AGREE)

90%	89%	68%	84%	85%	82%
Keeps me in touch with the world	Keeps me informed	Delivers trusted news	Keeps me company	Improves my mood	Makes me feel happy
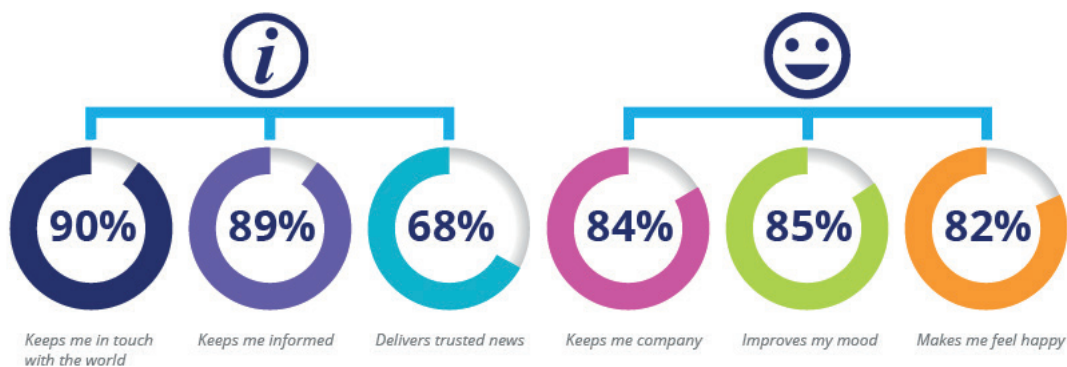
Source: Staying Connected During the COVID-19 Crisis, Radiocentre/DRG

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26   RAJAR Q1 2020
27   Radiocentre, Staying Connected During COVID-19 November 2020

2.19 While these needs existed for all audiences, the research also found that their importance varied between different audience demographics, and, importantly, the ways in which different audience groups met these needs also differed.

2.20 Live radio met a broad range of needs and stood out as the audio product that best met the need for company/support and keeping listeners 'in the loop'. In the case of most other needs, on-demand listening formats are as important, or in some cases more important, in meeting the needs of audiences. The emotional needs which audio on demand was felt to meet most effectively (for example, mood management) were those to which younger audiences tended to attach most importance, compared to the more practical needs which dominated for older listeners.

2.21 Music remains as important an ingredient as ever in live radio. Research from both commercial radio and the BBC consistently shows that 'variety of music' and 'to hear music I like' are the most important reasons people listen to the radio.[28]

2.22 Speech radio stations attract an overall weekly reach of 33% of UK adults.[29] While Radio 4 remains the UK's largest speech radio station, stations such as LBC and talkSPORT have enjoyed record audiences in recent years with new services such as talkRADIO, LBC News and Times Radio entering the market. The average age of a speech radio listener is 53, with speech stations generally having more success in attracting male than female listeners.[30] Podcasting appears to be filling a gap in the market for speech among younger listeners: 18% of all UK adults listened to podcasts in 2020 (up from 14% in 2019) with the highest reach being among 25 to 34 year olds at 27%.[31]

2.23 Notwithstanding the ongoing appeal of live radio, research indicates that on-demand audio services, both music and podcasts, have several defining characteristics which audiences find appealing, offering listeners control over what they consume, personalisation and the ability to share content, chiefly now on social media, as well as being able to offer a greater breadth of content, that it is hard for a fixed number of live radio stations to replicate.

2.24 It is therefore important that the sector continues to innovate with new ways of curating content and with new formats, as it has done through online platforms such as Radioplayer, BBC Sounds, Global Player and Bauer's Planet Radio. Initiatives like the Audio Content Fund enable the sector to develop public service programming that is traditionally more difficult to produce on a commercial basis, while schemes such as the BBC Sounds Audio Lab,[32] a new programme for grassroots podcasters and audio creatives with diverse stories, are helping to develop capabilities in the UK audio sector to address these audience needs through online content.

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28   Global Radio Habits Survey, 2019; BBC, Audio Needs Pulse, Aug 2019.
29   RAJAR Q1 2020
30   RAJAR Q1 2020
31   RAJAR MIDAS Spring 2020
32   BBC Sounds Audio Lab is a new programme for grassroots podcasters and audio creatives with diverse stories which particularly welcomes ideas from audio creators from under-represented groups.

SERVING ALL AUDIENCES

2.25 Having established a picture and forecast of how listening trends, behaviours and expectations may evolve over the next 10-15 years, it was important to also understand in more detail how these trends will be seen among under-served audiences and vulnerable groups, and how the needs of these listeners can be served by radio and audio in this changing landscape.

OLDER AND DISABLED AUDIENCES

2.26 Several specialist organisations were consulted, including the Royal National Institute for the Blind, Wireless for the Blind Fund, Voice of the Listener and Viewer and Wavelength, to seek their views on any specific challenges or opportunities for the constituent audiences they represent. Unsurprisingly, live radio was deemed very important for older and more vulnerable audiences, as a way for people to keep connected with society and also to counter isolation and loneliness.

2.27 RNIB reports that the vast majority, 93%, of blind and partially-sighted people listen to the radio. A report by Wavelength, a charity which gives media technology to lonely people living in poverty, shows that people felt less lonely after receiving a radio. In March 2020, Wavelength received over 9,000 applications in response to a radio distribution scheme for the over-70s who were vulnerable and self-isolating, which highlighted both how valuable radio is for older listeners but also how for many, even the most everyday technology is not readily accessible.

2.28 The specialist organisations also reported that some older listeners are reluctant to move to IP listening, with a lack of understanding of technology and the cost of broadband cited as potential barriers. For those that had moved to listening over IP, smart speakers were viewed as a positive development, especially for those with visual impairments. There was some concern raised around both privacy issues and the potential impact of unregulated online environments on already vulnerable listeners. All groups were reassured that listening to live radio is forecast to remain robust in the future.

YOUNG AUDIENCES

2.29 As highlighted previously in this Report, live radio is under increasing competition when it comes to younger audiences. This comes especially from audio on demand music streaming services but also from podcasts as well as the music offer from visual platforms, notably YouTube.

2.30 In the ten years from 2010 to 2020, the weekly reach of live radio among 15-24s declined by 8% (or 7.1 pp) from 88.7% to 81.6%. During the same period, the average hours per 15-24 listener fell by 23% (from 16h18m in Q1 2010 to 12h30m in Q1 2020). As a result, the total listening hours of 15-24 year olds fell during the period by 34%. Of particular concern is that young audiences do not seem to sufficiently grow

into radio later in life to compensate: 25-34s today are listening to slightly less live radio (16h06m in Q1 2020) than they were ten years ago (16h18m among 15-24s in Q1 2010).[33] This suggests it is important for radio that listeners develop a strong live radio habit early on.

2.31 The UK radio industry is actively trying to address the shifting needs of these young listeners. Commercial radio has launched a number of new digital-only services such as KISS Garage and developed online audio players such as Global Player, while the BBC has further evolved BBC Sounds and launched, for example, a new stream of content to help young audiences manage stress and wellbeing. Existing initiatives show some signs of success but the challenge will intensify as online audio audiences grow, leading competing global providers to further increase their investment in music streaming and podcast services.

BLACK, ASIAN AND MINORITY ETHNIC AUDIENCES

2.32 RAJAR data consistently shows that radio listening is lower among ethnic minority audiences than White audiences. According to the most recent data, 77% of adults from ethnic minorities listen to the radio each week, in comparison to 89% of all UK adults, with commercial radio reaching 62% of ethnic minority listeners and BBC reaching 42%.[34]

2.33 To provide greater understanding of diverse audience listening, the Review commissioned research exploring radio and audio listening among ethnic minority audiences. An online survey was undertaken by Dynata in March 2021, with a nationally representative sample of 4,000 respondents split across four ethnic groups: White, Asian, Black and Mixed Race/Other ethnicities. This was followed up with in-depth qualitative groups and interviews carried out by Ethnic Opinions in April 2021. The headline findings of both Dynata and Ethnic Opinions' studies are summarised below. The full reports are published alongside this report.

2.34 The research showed that ethnic minorities in the UK are less likely to listen to the radio than White audiences and those that do so listen with a lower frequency, as shown below. While the methodology of this research differs from that of RAJAR, the differences seen here are comparable and similar to the differences in listening by ethnicity shown in RAJAR.

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33   RAJAR Q1 2020 Vs Q1 2010
34   RAJAR Q1 2020

LISTEN TO RADIO AT LEAST ONCE A WEEK:

81%	72%	72%	70%	72%
White respondents	Asian respondents	Black respondents	Mixed Race and Other respondents	All ethnic minority respondents
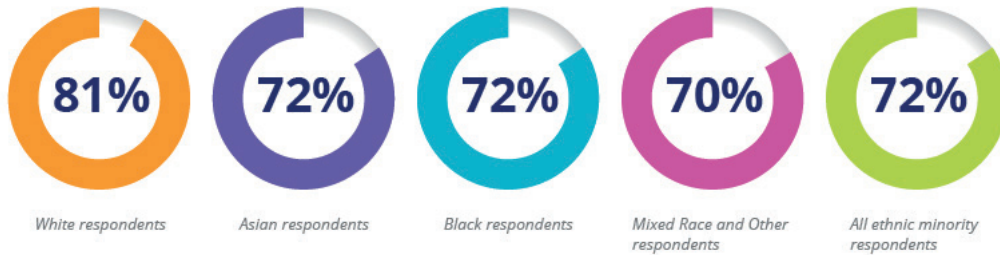
LISTEN TO RADIO EVERY DAY:

34%	23%	28%	24%	25%
White respondents	Asian respondents	Black respondents	Mixed Race and Other respondents	All ethnic minority respondents
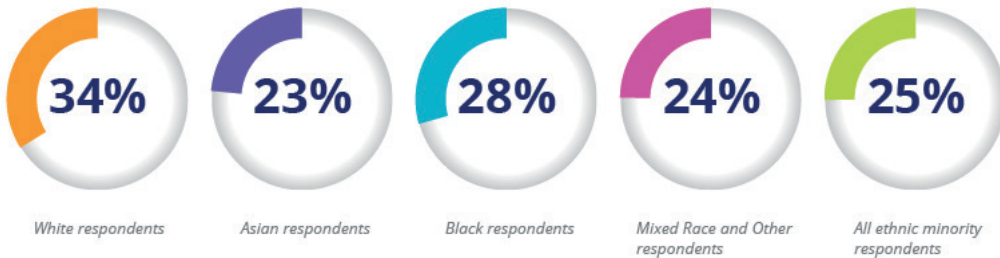
Source: Dynata, Ethnic Minorities Radio Listening Project, Q4. How much radio do you listen to in a typical week?

2.35 The research found that ethnic minority audiences are more likely to agree with the statement "I don't think radio is for people like me"[35] than White audiences. The research also suggested that listeners from ethnic minorities feel that national stations in particular are less likely to cater for them and do not adequately represent them. In contrast, ethnic minority audiences over-index for listening to community radio, and non-UK based stations and pirate radio.[36]

2.36 The research showed that representation (along with relevant content) was a critical element in making radio more valuable to ethnic minority audiences.[37] Participants in the research noted that they felt unaware of existing ethnic minority talent and that more could be done to raise the profile of stations that featured such talent in a genuine way. There was an appreciation amongst ethnic minorities that radio is doing somewhat better than many other public spheres, such as politics and other areas of the media, to improve diversity, including the range of content, more diverse presenters on air, and a more representative workforce in the industry more broadly.[38] However, listeners still said that there remains much more work to do, and this was especially the case for younger audiences who expect a faster pace of change in all areas of diversity irrespective of their own background. These issues are discussed in more depth later in this chapter.

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35   Dynata, Ethnic Minorities Radio Listening Project, Q7
36   Dynata, Ethnic Minorities Radio Listening Project, Q8
37   Dynata, Ethnic Minorities Radio Listening Project, Q23, Q25
38   Ethnic Opinions, Ethnic minorities audience perceptions and consumption of radio and alternatives, April 2021, p16

THE ROLE OF AUDIO IN SERVING LOCAL AUDIENCES

2.37 In recent years, listening to UK-wide radio stations has grown, to some extent at the expense of listening to local and regional stations. A large number of new national commercial stations have launched on DAB, giving live radio listeners much more choice. The main commercial groups have networked services into larger editorial areas, which has allowed investment into content but at the expense of some local content (the exception being local news). At the same time, online and, in particular, social media is delivering local and hyperlocal content which was once a key selling point for local radio.

2.38 Nevertheless, research shows that listeners continue to value local news and information on BBC and commercial local radio. 27% of weekly radio listeners say they value local news on radio, increasing to 39% of those who listen to local radio.[39] Between them, the commercial local stations and the BBC's local and Nations' stations still accounted for 31.8% of all radio listening at the start of 2020, with the BBC stations reaching 7.8 million listeners a week and commercial local stations 25.2 million.[40]

2.39 Commercial radio services range in the size of area they cover from small rural stations such as Radio Skye which covers c6,000 people, through town and county-sized stations such as Sun FM (Sunderland) to regional stations such as Wave 105 (South Coast). The services include a mixed model with many providing local output throughout the day including local news and information, while others provide national networks presented by well-known national talent, within which local news and information is embedded.

2.40 The BBC provides 39 local services in England, collectively covering the whole of England (generally at a county level), and national services in Scotland, Wales and Northern Ireland, including separate services in Welsh and Gaelic. The stations provide news, sport, information and debate at a local level along with connection to local stories and communities through a mix of speech and music.

2.41 Ofcom's development of small-scale DAB, which provides a low-cost route to digital broadcasting for small independent commercial and community stations, will further strengthen the provision of local content and increase listener choice through a range of innovative and diverse services. Ofcom is in the process of the UK-wide roll out of the licensing regime for small-scale DAB, which will lead to the launch of over 200 new hyper-local multiplexes offering potentially thousands of services.

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39   TouchPoints 2021
40   RAJAR Q1 2020

SMALL-SCALE DAB

Radio is undergoing a quiet revolution. The UK's digital radio platform is being opened up to more and more smaller stations allowing new stations to be established and internet-only stations to make the move to the digital radio platform. The technology for small-scale DAB was first piloted in 2013 and later trialled by Ofcom between 2015 and 2018 in 10 locations across the UK. The trials, involving around 140 different small stations, showed the feasibility of new low cost approaches to digital radio distribution.

Following a successful Private Members' Bill, the government introduced regulations allowing Ofcom to license new small-scale multiplex areas covering smaller geographical areas and giving the smallest commercial stations as well as community radio the option of broadcasting on DAB. By the end of July 2021, Ofcom had awarded 25 small scale multiplex licences, with plans to roll out many new areas over the next 3-4 years.

2.42 The appetite for hyper-local content can be seen in the strong and growing community radio offer across the UK. There are now more than 300 community radio services across the UK (including over 40 specifically serving ethnic minority communities). Community radio stations typically cover a small geographical area with a coverage radius of up to 5km (3 miles). Services offer a diverse range of output targeting many different audiences, some with a geographic focus on a particular community, others on a particular segment of their community such as young people or the LGBT community, those of particular religious or ethnic groups, or those with particular interests such as education or the arts.

2.43 Recently the BBC has begun to work more with community radio with the sharing of news content during the pandemic and a range of experimental creative initiatives which may lead to a longer term collaboration between public service and community radio to help strengthen radio at a local level. The BBC's Annual Plan included a commitment to explore ways to collaborate further with community radio.

2.44 To better understand the value and role of community radio, the Review undertook a study of community radio listening across the UK, consisting of quantitative research to provide insights into community radio audiences, and an audience measurement project using existing RAJAR data to derive an estimate of reach for all community radio stations combined. This analysis indicates that:

- Around 1 million (2%) adults 15+ in the UK population listen to community radio in an average week.[41]

- Community radio is particularly effective at reaching audiences who are proportionately less well represented in the All Radio audience - especially C2DE listeners and those from a Black or Asian background.[42]

Full details of this analysis have been published alongside this report.

41   RAJAR/Ipsos/RSMB, Audience Estimates for UK Community Radio Stations, February 2021
42   RAJAR/Ipsos/RSMB, Audience Estimates for UK Community Radio Stations, February 2021

2.45 Alongside the RAJAR analysis, in February 2021, research was undertaken to explore the relationship that listeners have with their community radio stations and to provide insights into the value and needs being fulfilled by community radio for its audience.[43] The survey results underline the deep connection that listeners have with their community station. Having the ability to hear very local news is a valued attribute of community radio, especially in areas where there is no other local station, or if nearby stations cover wider areas. In some places, the absence of a local newspaper means community radio may be the only source of regular local news updates. Respondents specifically mentioned the way their community radio station provided practical and emotional support during the COVID-19 pandemic. The full results of this research are published alongside this Report.

HELPING THE RADIO AND AUDIO INDUSTRY TO SERVE ALL AUDIENCES

2.46 Having examined listeners and their attitudes to and requirements from radio and audio, the Review looked in more detail at those factors which could help the industry to thrive and prosper, delivering content which audiences value. This includes a range of factors which could enhance the listener experience, covering how content is produced, delivering the best regulatory framework to allow the acceleration of content innovation, and opening new pathways into the industry for the widest talent pool to influence the future. The development of digital radio has allowed for a broader range of national services, including services targeted at specific audiences such as Asian and Christian communities. The emergence of small-scale DAB, along with community radio, means there is a growing degree of diversity and choice of radio services, especially in urban areas. Stations such as KISS Fresh, Capital XTRA and BBC Radio 1Xtra have also provided a way into music and radio for new presenters with new ideas, helping to drive new music trends in the UK. These developments provide a basis to further encourage efforts to promote new services which can reach a broader range of listeners.

2.47 The analysis provided by Mediatique suggests that, while listeners' habits will continue to change as listeners discover new forms of content and new ways to listen on new digital devices and platforms, broadcast platforms and traditional radio devices will remain important, with many listeners continuing to listen to live radio content via broadcast networks. At the moment FM still has a significant share and is projected to decline only slowly between now and 2030. FM will continue to be a vital platform for listeners for the rest of the decade.

2.48 The focus - as distribution moves to a hybrid DAB/IP future - needs to be on supporting investment and innovation in content and making that content available to the widest audiences, however they are listening. Giving priority to innovating in content, formats and presentation will help to give UK radio the best chance of remaining vital and relevant. There are also opportunities for the UK audio production sector as a whole to develop further to meet the growing demand - particularly from younger audiences and internationally - for varied audio content that relates to life in the UK as it is today, and to capitalise on the UK's growing audio production base in the light of strong international demand for English language content.

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43   Community Radio Audiences and Values, February 2021

2.49

There are four areas where a combination of government support and cross-industry attention would help to support broadcasters and content creators to further invest in strengthening the overall mix of content available from radio stations and audio producers:

- A renewed focus by government to **reduce regulatory burdens** on commercial radio by bringing forward, as soon as possible, legislation as set out in its response to the government's consultation on radio deregulation in December 2017 and make changes to the restrictive rules on terms and conditions that have specific impacts and opportunity costs for commercial radio;

- Continuing support from government and Ofcom for the **development of hyper-local services** to complement the existing networks of local commercial and community radio;

- Collective work by government and industry to support the development of the wider audio sector, including the consideration of tax relief to help UK producers take advantage of future growth opportunities and further action on **skills and training** to open radio and audio to more diverse talent and voices;

- More attention by industry to developing cross-industry initiatives to create content and services to better reflect and appeal to the UK's **diverse audiences** - this means a strong commitment across the industry to tackle barriers and bring on talent from ethnic minorities in particular, both in terms of content and in the workplace.

2.50

There is also an emerging issue about the regulatory environment around music copyright as UK radio broadcasters and audio producers evolve services to meet the needs of listeners with the shift of listening to IP-based platforms. The UK radio industry has for many years been a significant partner for music talent, labels, writing, and performance and events in the UK. By showcasing, nurturing and promoting new music and helping to develop new talent, UK radio has enjoyed a valuable and mutually beneficial synergy with the various elements of the UK music industry. UK radio contributions to music (through fees paid by the sector) are agreed by the BBC and commercial radio with the major UK collecting societies through scheme-based sector arrangements. There are well established principles that recognise the role of radio, the difference to music streaming and the need to treat radio in the same way across all platforms.[44]

2.51

As mentioned elsewhere in the Review, UK radio's future success will be dependent on the sector innovating and investing significantly in talent, content, technology and brands in order to compete with the larger technology platforms. It is important that this innovation, especially into new areas of IP-based delivery, is supported and enabled by a fair and transparent music licensing regime. The Review therefore recommends that the sector tracks progress and challenges around this and provides an update report to DCMS on this issue by the end of 2022.

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44   Radio remains one of the biggest sources of music discovery. According to Radiocentre's Valuing Radio report, the value of music sales supported by commercial radio is estimated at £103m (plus £50m in music rights payments).

REDUCING REGULATORY BURDENS

2.52 Radio is probably the most regulated part of UK media. Radio consistently scores as a trustworthy part of UK media according to various UK and international studies.[45] The structure of UK regulations, based on Ofcom licensing and content regulation, helps support this trust. However, the changing landscape for UK radio with increased competition means it is important that the regulatory structure keeps pace with these changes and is set in a way which encourages commercial organisations to invest in new content and services whilst still ensuring the availability of local news, which matters to audiences. It is also important to ensure the BBC has the right framework so it can evolve its offer to deliver value to all audiences in the context of the changing media environment and especially the shift to IP consumption.

2.53 The current structure still retains requirements relating to the format of content and how commercial radio services are organised with changes requiring approval from Ofcom. In February 2017 the government consulted on a wide package of changes, which were strongly welcomed by commercial radio broadcasters. The government set out its proposals in response to the consultation in December 2017. In order to create the environment for more investment in content, the government should bring forward plans to legislate in the forthcoming Media White Paper announced by the government in June 2021.[46]

2.54 The radio sector is also disproportionately affected by the existing rules relating to financial service advertisements for products that mention the cost of credit. In particular, the current regime requires a significant amount of time - often around a quarter of the length of the advert - to be taken up by complex terms and conditions. This is costly to the industry, off-putting for advertisers, and confusing for listeners. To address this, the Financial Conduct Authority (FCA) should consider putting in place a new, simpler regime that reflects the particular characteristics of radio and audio, while maintaining consumer protection.

INCENTIVISING NEW LOCAL SERVICES

2.55 The recent growth of new DAB-only commercial stations and community stations has the potential to strengthen the range and diversity of radio and audio services. These services are valued by communities and have proved their worth (both individually and collectively) during the COVID-19 pandemic. The development of small-scale DAB opens up the opportunity of increasing the number of small local stations adding greatly to listener choice and plurality. As research carried out for the Review shows, community radio reaches around 1 million people each week and makes a considerable impact to the communities served, not least as a means of bringing together and communicating with different local community groups.

45   EBU, Trust in Media, April 2020. Research carried out for iheartmedia. Source: Engagement Labs Trustworthiness Survey July 2020
46   Statement by the Secretary of State for Digital, Culture, Media and Sport - 23 June 2021

2.56 The BBC, as noted in its 'Across the UK' announcement,[47] remains committed to local radio as a core part of its public radio offer, and during the pandemic has been sharing news content and working on a range of collaborations with community radio stations, as referenced previously in paragraph 2.43, to support radio at a local level.

2.57 To maximise these benefits the government may want to consider extending support for community radio - for example by expanding the Community Radio Fund - and consider whether a new local news fund for radio might help to strengthen small local commercial and community stations. The Community Media Association has highlighted that the current funding - £400,000 per year - is actually £100,000 less than the size of the fund at its launch in 2005/6, when there were far fewer community stations on air, and that an increase in the level of funding would help support the new community digital radio stations that Ofcom is starting to license.

2.58 Finally, there could also be merit in the government working together with the commercial and community radio sectors to ensure that smaller stations benefit from being able to use their reach into communities to support targeted public information campaigns. The Cabinet Office's BAME Radio Partnership, which began in the summer of 2020, has been a successful example of engagement and cooperation to increase the visibility and impact of campaigns.

BAME COVID-19 RADIO PARTNERSHIP

During the COVID-19 pandemic, as part of endeavours to ensure that people across the UK were receiving clear and accurate information, the Cabinet Office and its external partner Omnigov set up a partnership with 12 multicultural radio stations with a combined reach of around 900,000 people.

Through a programme of co-creation with each station, a series of campaigns were targeted at hard to reach audiences, while working in a partnership enabled work to be carried out at scale, and with the flexibility to deliver multiple messages over a short period of time.

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47   BBC publishes blueprint for the biggest transformation in decades

SUPPORTING THE GROWTH AND DEVELOPMENT OF INDEPENDENT AUDIO PRODUCTION

2.59   A change to the UK content landscape over the past 10-15 years has been the development of the UK's independent audio production sector. This creative sector is made up of SMEs based all around the UK, creating a wide range of audio-led content including radio programmes, podcasts and audiobooks. There is also a lively freelance community producing podcasts alongside working with larger production companies.

2.60   The sector has grown its work with the BBC, due first to a 10% voluntary quota established in 1990, then an additional 10% Window of Creative Competition created as a result of the 2010 BBC Trust Review into radio programme supply. Following this, as a result of discussions between the Radio Independents Group (now AudioUK) and the BBC it was decided, as part of the BBC's overall 'Compete or Compare' strategy, to increase the amount of relevant radio hours available to be competed for by external producers to 60% by the end of 2022. This is written into the current BBC Agreement.

2.61   The BBC is proceeding towards this target, reaching 53% in its latest annual report.[48] Current proportions of eligible hours awarded to independent producers average out at 25.9% across all the BBC's UK-wide analogue and DAB networks.[49] BBC Sounds is also using the 60% figure for contestability in its podcasting commissions.[50]

2.62   The Audio Content Fund (ACF) has created new partnerships between commercial and community radio and the independent production sector. The first six rounds of the fund, plus additional COVID-19 and loneliness rounds, have resulted in 115 projects from 73 production companies, broadcast on 320 stations. A survey by the Audio Content Fund of the successful bidding companies produced figures showing that ACF projects had created or supported a total of 4,301 freelancer days plus 28 full-time jobs and 141 part-time jobs. 27 of the companies said that winning an ACF commission had assisted them to win additional work elsewhere. The benefits to audiences was also clear, as the ACF has provided them with a range of innovative and high-quality PSB programmes on their chosen stations.

2.63   The opening up of some BBC radio commissioning and the advent of the Audio Content Fund has coincided with the growth of demand for audiobooks and podcasting content, which is creating new opportunities for audio content creators. The result has been an increase in UK audio production businesses and the value of the sector as a whole. This value has increased with the rise of new digital formats such as podcasts and audiobooks which the UK, with its already well-developed production sector, has been in a good position to enter into from the start.

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48   BBC Annual Report 2020-21 p148
49   BBC Annual Report 2020-21 p149
50   Whilst the BBC publishes details of commissioning hours, it does not publish data on its commissioning spend on the independent audio sector.

PODCASTING

Podcasts are digital recordings of broadcasts or pre-recorded audio content that is available via the internet for downloading or streaming to a computer, smartphone or other connected audio device. Podcasts are widely available from broadcasters' own sites or audio providers such as Spotify, Acast, Apple and Amazon Music, and from specialist providers such as Buzzsprout, Podbean, Transistor, Simplecast, Audioboom and Spreaker.

Podcast content continues to grow in popularity with RAJAR's Spring 2020 MIDAS data reporting around 10 million weekly listeners (18% of adults) with 32% of podcast listening taking place whilst driving/travelling.[Ref1] Ofcom's 2021 Podcast Survey[Ref2] suggested that numbers of regular podcast listeners may be higher, finding that 25% of adults were regular podcast listeners.

According to RAJAR MIDAS Spring 2020:

- 79% of podcast/download listening hours happen on a smartphone

- 44% of podcast listeners listen when driving/travelling, and 34% when relaxing

- 65% of podcast listeners listen to the entire audio episode, and 68% listen to all/most of the episodes they download

- 92% of podcast sessions are a solo activity

The growth of podcast listening may have slowed due to the impact of COVID-19 lockdowns on travel to work patterns and the resulting changes in listening behaviour.[Ref3] Nevertheless, eMarketeer is predicting that the number of listeners will grow to 16m by 2024.[Ref4]

Ref1   RAJAR MIDAS Spring 2020
Ref2   Ofcom Podcast Survey 2021
Ref3   Ofcom Media Nations 2021, p77
Ref4   Emarketeer How the pandemic affected our UK digital audio listener forecast

2.64 In the UK, podcast advertising revenues amounted to £33.56m in 2020, and by 2024 is forecast to reach almost £75m annually.[51] This figure excludes significant investment in UK podcasting by the BBC. Meanwhile, in the US the podcast ad market has been valued at around £560m in 2020.[52]

2.65 There are a number of reasons for this disparity, not least that the US market is more mature. In the UK, the BBC's additional non-commercial investment in audio, including podcasting, is an important part of the total UK market and contributes significantly to the development of the UK creative sector. Commercial radio believes that the BBC's approach and the evolution of BBC Sounds has impacted commercial growth in the sector, however, Ofcom's[53] provisional conclusion was that they did not have reasonable grounds to believe BBC Sounds is having a significant adverse impact on fair and effective competition. The US

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51   Statista 2021
52   PwC Global Entertainment & Media Outlook 2021-2025
53   Ofcom- Market Position of BBC Sounds - May 2021

example suggests there is considerable scope for growth in UK podcast revenues. The transnational appeal of English language programming means that UK commercial radio and independent audio producers are well-placed to capitalise on the future growth and demand in international markets for English language audio content and to generate revenue in foreign markets. The recent acquisition of Somethin' Else, a large award-winning UK producer, by Sony is a clear sign that international investors are starting to look at the potential of the UK audio sector. This is also reflected in the audiobook sector where consumption is also rising. The Publishers Association reported that in the 2020 UK audio download purchases had grown to £133m, an increase of 37%.[54]

2.66

There is potential to help support the growth of UK audio production, a sector which does not currently benefit from any support through tax reliefs. The success of existing programmes supporting other parts of the UK's creative industries, in particular those for film/high-end TV and for video games, suggests there could be potential economic benefits for extending support to audio producers to cover larger commissions or productions (including international productions) where the risks of scaling up production teams may be a barrier to developing content ideas. The relatively small size of the industry means the cost will be modest. Such a scheme could also be designed in such a way as to encourage producers to develop new talent. AudioUK has recently submitted a report to DCMS and HM Treasury setting out a proposal for a new Audio Production Tax Relief (APTR),[55] which sets out the case for its introduction and includes modelling to demonstrate that such a tax relief would result in a net gain to HM Treasury.

SKILLS AND TRAINING

2.67

The radio and audio sector employs a significant workforce made up of talented and skilled professionals. For the sector to continue to thrive and ensure that it attracts a broad range of talent from a diverse range of backgrounds, skills training needs to be both widely available and relevant. Individual sectors and organisations are undertaking their own initiatives to develop the next generation of radio and audio talent.

2.68

These initiatives include, for example, the BBC Sounds Audio Lab producers programme and the BBC Academy which offers apprenticeship schemes covering a range of production placements located in London, Salford, Birmingham and Bristol, as well as supporting Digital Journalism apprenticeships; the Global Academy, a state secondary school founded by Global to help reduce the barriers to entry into the media industry, alongside which Global operates its own apprenticeship scheme; the Bauer Academy, which offers a range of vocational and formal training programmes to increase access and entry routes into audio for underrepresented groups; and News UK's Kickstart placements, which offer experience and training across News UK's editorial and broadcast brands.

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54   Publishers Association, Publishing in 2020,April 2021
55   AudioUK, The case for an Audio Production Tax Relief, July 2021

2.69   In addition, cross-sector training and mentoring is supported by Creative Access Masterclasses organised by Radiocentre and the BBC, which provide young people from ethnic minority backgrounds with insights on getting into and ahead in radio and audio; and Audiotrain, AudioUK's ongoing specialised audio production training programme. The community radio sector also delivers a number of education and training initiatives, with many stations being part of, or closely linked to, charities, educational trusts or similar to deliver formal and accredited audio and radio training. The Radio Academy offers a number of initiatives including a newly-launched pan-industry mentoring scheme,[56] a training and development funding scheme, as well as online career development resources.

2.70   These individual initiatives are creating opportunities for new and emerging talent, and individual organisations continue to place developing future talent as a key part of their strategic plans. However, there is a strong case for establishing a new initiative to bring together and build upon the work that the BBC, commercial radio groups, community radio, AudioUK, and others, do separately. It would also help broaden access and improve understanding of the roles required in radio and audio, along with the type of skills required.

2.71   Such an initiative would help fill the gap once filled by Creative Skillset which previously provided support to the audio industry, particularly on the production side, alongside AudioUK's Audiotrain programme (formally RIG Train). Financial support from Creative Skillset to Audiotrain was withdrawn in 2016 as the government's priorities changed and Creative Skillset subsequently reorganised into ScreenSkills in 2018, thereby effectively removing public funding provision for audio-only skills programmes. Audiotrain accordingly had to reduce its training programme. While it continues to offer a range of courses, this is done on a minimum budget, and AudioUK suggests there is significant potential to deliver more. During the pandemic, AudioUK adapted its courses to an online format with good results, one webinar attracting over 300 viewers suggesting a high level of demand.

2.72   Given the sector's continuing growth and contribution to the economy there is also merit in exploring further cross-industry skills initiatives for the radio and audio sector which could help broaden opportunities, and attract and develop a more diverse workforce, particularly amongst radio and audio producers. Audio skills and training has tended to be overlooked by recent strategies designed to support other audio-visual sectors which nurture and upskill film and TV sectors. The primary responsibility for training the next generation of writers, performers and producers is chiefly one for the industry and existing efforts would benefit from being more joined-up. This would be an obvious area for a cross-industry initiative (as set out in para 2.70) to lead on. There is also a role for the government to look again at the exclusion of audio-only skills from existing support for skills development in the creative industries and to work with the radio industry on supporting skills investment.

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56   RAMP, the Radio Academy Mentoring Programme, for mid-career radio and audio professionals based in the UK

DIVERSITY AND INCLUSION

2.73   The UK radio sector plays a significant role in society, both culturally and economically. Today the industry is made up of over 13,500 employees and freelancers. Radio reaches eight out of ten ethnic minority listeners (compared to nine out of ten for all listeners) and supports a range of diverse stations which are targeted at ethnic minority communities. Over the past few years there has been a considerable change in the work undertaken by radio broadcasters and the independent production sector on diversity, inclusion, skills and training which is explored in more detail below. The BBC is focusing on increasing representation at senior leadership by ensuring it has a diverse range of decision makers within its commissioning teams and is also working with the independent sector to increase the diversity amongst suppliers to reach 20% of their workforce. Commercial radio broadcasters also continue to address making improvements in this area across all aspects of their businesses. However, there is recognition that more needs to be done by the whole industry to make radio and audio more reflective of the diverse audiences that they serve.

2.74   A useful first step has been the collection of data on the radio broadcaster workforce for Ofcom's annual review and report on diversity and equal opportunities in radio which was first published in 2018,[57] and has been produced annually since then. The most recent report was published in September 2021 and reflected on progress over the last five years. In the accompanying press release Ofcom highlights that:

> *"Broadcasters have made progress hiring a wider range of talent. For example, there are twice as many people working in radio from minority-ethnic backgrounds as there were three years ago. But for the first time, more people are leaving the industry than joining, particularly women, while disabled people remain significantly underrepresented. And because companies have focused on entry-level recruitment, there still isn't enough diverse talent in senior roles."[58]*

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57   Ofcom, Five-year review: Diversity and equal opportunities in UK broadcastingTV and radio' report - September 2021
58   Ofcom, Diversity and equal opportunities in radio, 2018

SNAPSHOT FROM OFCOM'S 'FIVE-YEAR REVIEW: DIVERSITY AND EQUAL OPPORTUNITIES IN UK BROADCASTING REPORT - SEPTEMBER 2021[REF5]

Ofcom's fifth report on diversity in broadcasting reflected on progress over the last five years.[REF6] It finds:

- Radio broadcasters are employing a greater proportion of minority ethnic people (10%) and disabled people (7%) in the UK than four years ago. The percentage of women in the radio workforce declined from 52% in 2019/21 to 50% in 2020/21.

- In 2017/18, minority ethnic groups made up just 6% of the radio workforce. This has now increased to 10%, though this is still below the UK working population benchmark of 12%.

- Diversity remains poor at senior levels, with broadcasters appearing to have focused on entry-level recruitment at the expense of retaining and progressing their diverse talent. Furthermore, broadcasters are struggling to retain talent in the aftermath of the pandemic, with more women in particular leaving the radio industry than joining.

- Disabled people continue to be underrepresented, and despite encouraging initiatives in recent years, industry-wide representation is at 7% - less than half the UK benchmark of 19% in 2020/21.

- Broadcasters are now providing Ofcom with much more data on the makeup of their workforce. In 2017/18, disability information was missing for around a third of industry employees. Today, Ofcom knows the disability status of 85% of radio employees.

Ref5   Ofcom, Five-year review: Diversity and equal opportunities in UK broadcasting TV and radio' report - September 2021, p45
Ref6   Monitoring of the radio industry was introduced in 2017/18, so the report covers a four year period for radio.

2.75   As required by their licence conditions, broadcasters must make arrangements for promoting equality of opportunity in employment between men and women, people of different racial groups and disabled people, and make arrangements for training. Ofcom's powers in this area stem from the Communications Act 2003 and Ofcom has been pressing radio and TV broadcasters to do more in this area. There have been clear moves in recent years by broadcasters to boost ethnic minority, sexual orientation and gender diversity across their on-air and online portfolios. These are alongside changes in recruitment practices and the approach to training and apprenticeships. For example, in 2021 the representation of minority ethnic groups amongst Global's staff increased to 13%, slightly above the UK benchmark and having doubled since 2017/18, and increased to 10% amongst Global's senior management level.[59]

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59   Ofcom, Five-year review: Diversity and equal opportunities in UK broadcasting TV and radio' report - September 2021, p45

2.76 However, as the research carried out as part of the Review also highlights, more needs to be done, particularly on industry skills and training, as well as offering practical ways for new talent to enter the industry. According to the Dynata study, 21% of ethnic minority respondents said that having more staff of different backgrounds working behind the scenes would make a difference in improving the appeal and attraction of radio for members of ethnic minorities.[60]

2.77 In the qualitative work carried out by Ethnic Opinions, there was also an appreciation that radio - as shown from the following examples - is doing better than other public spheres, such as politics and other media. For example, many of the smallest commercial radio stations are some of the most diverse. A 2019 Radiocentre report, Tuning In to Diversity[61] found that these specialist stations, which broadcast around the country and cater to a large number of minority communities, have some of the highest levels of workforce diversity within the industry. There is a similar picture with volunteers involved with ethnic community stations. However, the findings from the Dynata research make clear that listeners from ethnic minorities believe there is more work broadcasters in general could do to make their content offer even more relevance for ethnic communities.

2.78 Whilst broadcasters have been active in addressing the issues highlighted by this research, as shown by the recent initiatives highlighted in the box below, there is a clear acknowledgement that more can be done to ensure radio and audio more closely reflects audiences and a commitment from across the industry to take action to tackle these barriers and to bring on talent from ethnic minorities.

RECENT INITIATIVES BY THE RADIO INDUSTRY THAT SUPPORT GREATER DIVERSITY

The BBC has committed to prioritising £12m of its radio commissioning budget over three years (2021 – 2024) towards diverse and inclusive content. This investment builds on its Diversity and Inclusion strategic priorities with the introduction of the 50:20:12 targets, ensuring 50% of its workforce population are women, at least 20% Black, Asian and minority ethnic staff, and building from at least 12% disabled staff towards reflecting the UK population.

Developing future talent is also a key part of the BBC's strategic plan, having successfully piloted its Radio 5 live presenter programme for diverse presenting talent, and invested in mid-level talent through its Open Music scheme and Sounds Audio Lab producers programme due to launch in late 2021.

The Global Academy, a state secondary school founded in 2016, has helped 14-19 year olds from all backgrounds into the media. Students from the Global Academy have gone on to work at a number of leading media companies including Facebook, Google and the BBC as well as Global, the school's lead sponsor.

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60   Dynata, Ethnic Minorities Radio Listening Project, Q21
61   Radiocentre, Tuning In To Diversity 2019

The Bauer Academy was created in 2014 to increase access and entry routes into audio for underrepresented groups with diversity embedded in its culture. It has worked with a range of partners and provided learning opportunities to over 20,000 individuals across the UK.

In 2018, News UK (Wireless' parent group) formed a Diversity Board to shape an inclusion strategy across its radio stations and publishing businesses, with a number of new commitments to increase the diversity of its workforce and the representation of wider society within its content.

Radiocentre champions diversity across the sector through a number of high-profile initiatives such as the Young Audio Awards, Mental Health Minute, and its Tuning In to Diversity report.

Around 300 Ofcom-licensed community radio stations are currently broadcasting and catering for a wide variety of geographical areas and communities of interest - such as a particular ethnic group, age group or interest group including from Asian and Afro-Caribbean communities. A number of stations cater for senior citizens; nine are members of the BFBS network, broadcasting to the armed forces. Six carry some Welsh language programming; others broadcast in Irish and Scots Gaelic. There are a number of stations focusing on Christian communities as well as dedicated LGBTQ+ stations.

AudioUK has been implementing a diversity strategy that includes a more diverse range of courses and contributors to its Audiotrain programme, as well as resources and signposting on its website for producers and individuals aimed at diversifying the workforce.

The Radio Academy runs events and development schemes for people in all areas and at all levels of the radio and audio industry. The Academy is also developing a new careers website that includes practical career profiles for dozens of roles across the sector. Digital Radio Tick Mark Scheme

2.79 These initiatives are designed to ensure that UK radio and audio moves more compellingly towards a diverse and inclusive workforce with stronger talent pathways. The UK radio and audio industry will need to collectively monitor the impact and effect of these and other initiatives and the degree to which they are effecting change. There is recognition from across the industry that further steps will be needed to support diversity and inclusion if these initiatives are not delivering that effect. Additionally, broadcasters will need to take account of the findings of Ofcom's most recent report (published only a few weeks before the Review) which calls on broadcasters collectively to place much greater focus on retaining and progressing senior, diverse talent.

CONCLUSIONS

2.80 The UK is very well served by a wide range of radio and audio services with a growing choice of national local and community services and the maturing of the independent production sector creating further opportunities to develop and grow. Changes in technology (discussed in more detail in the following chapters) will continue to shape the direction of UK radio services over the next 15-20 years. Although forecasts produced for the Review suggest that radio will decline as a share of total audio consumed by 2035, it is clear that radio will remain a vital medium accounting for over half of all audio consumption well into the mid 2030s, and that FM will continue to be part of the mix within this time frame.

2.81 The future health and viability of radio depends on the BBC and commercial broadcasters being able to attract and retain audiences but there is also an opportunity to reach even wider audiences, as research carried out for the Review shows, with the popularity of new local independent services and a wide range of community radio stations demonstrating a demand for more diversity in content. The Review's recommendations reflect a need to reduce burdens on the sector and for industry to build on the initiatives already underway to ensure that radio and audio services are as diverse and inclusive as possible, and for the government to continue to support the development of local and community stations which research carried out for the Review confirms are greatly valued as a means of meeting audience needs for local services.

RECOMMENDATIONS

R.1 Ensure radio remains available to all audiences across FM, DAB and IP and continues to be available to thrive as a free to air medium. government and Ofcom should note the Review's conclusion in relation to radio's transition from an analogue to a digital medium on DAB and IP platforms that:

- FM spectrum will be needed for BBC, commercial and community radio services at least until 2030 and that there should be no mandated switchover before that time;

- DAB spectrum will be needed for national (BBC and commercial), local and small-scale services beyond 2030 and for the foreseeable future.

R.2 Government to consider bringing forward, as soon as possible, legislation to simplify commercial radio licensing and format regulation, as recommended by DCMS in December 2017.

R.3 The FCA to consider working to simplify rules governing terms and conditions in radio ads to facilitate clearer messages on financial products and services.

R.4 BBC to explore new partnerships with community radio and community purpose audio organisations.

R.5 The government to consider extending support for the growing community radio sector - for example by expanding the Community Radio Fund.

R.6 The government to consider continuing to make funding available for public service audio content, subject to evidence of impact, and consider increasing the budget with a portion allocated to supporting opportunities for new and more diverse talent to get started in the industry.

R.7 The government to consider the case for tax relief for investment in higher-end produced audio content (for example in genres such as drama, comedy, factual e.g. true crime, one-off live big scale events) - drawing on experience of the successful High End TV Scheme.

R.8 The radio industry should track progress on the issue of music licensing fees chargeable for non-linear services and provide an update report to DCMS by the end of 2022.

R.9 Industry should consider establishing a new Radio and Audio Skills initiative and explore a partnership with ScreenSkills to help showcase existing training initiatives and skills requirements, and develop a joined-up approach to skills needs and funding opportunities.

R.10 The government to work with industry to review skills funding for the audio sector in order to help develop and deliver high quality audio skills training for a new generation of talent.

R.11 The radio industry should ensure an increased share of authentic representative ethnic minority talent through:

      a. Interventions that lead to permanent roles and which bring new talent into the industry at every level; and

      b. Give greater visibility to existing ethnic minority talent.

R.12 Government and industry to look to collaborate to identify opportunities to expand ethnic minority radio and audio services - particularly for under-served communities - building on the existing provision offered by commercial and community stations.

R.13 Ofcom to continue to encourage and track cross-industry diversity initiatives and support greater industry collaboration in order to optimise the benefits of positive work and initiatives undertaken by individual broadcasters on diversity, training and skills.

CHAPTER 3 -

THE FUTURE OF RADIO AND AUDIO LISTENING TO DEVICES USED IN HOME

CHAPTER 3

THE FUTURE OF RADIO AND AUDIO LISTENING TO DEVICES USED IN HOME

Reinvigorating broadcast radio and its underpinning technologies for an IP listening era in the home

INTRODUCTION

3.01
The way people consume radio and audio content continues to change. A significant cause of this is the emergence of new technologies, particularly connected devices, which give easy access to streaming content and enable listeners to obtain and enjoy content whenever and wherever they like. In spite of the growing choice, listening via traditional radio devices continues to be strong and remains important, especially to older people.

3.02
Projections from Mediatique prepared for the Review suggest that FM listening will still account for 12-14% of listening in 2030 and 8-10% in 2035.[62] This should not be a surprise. The traditional radio broadcasting model has a long history, combining robust and near universal coverage with free to air access via a range of devices available to purchase at a range of prices (including low cost devices), and remains popular with listeners. However, a healthy and vibrant radio broadcasting ecosystem also depends upon a strong and robust radio device market that provides a wide availability of devices capable of receiving radio at all price points.

3.03
The market for radio listening including DAB radio is increasingly mature. Around 66% of UK adults currently claim to have access to a DAB radio set at home.[63] However, over the past five years, there has been a decline in sales of new DAB portable devices used in the home. The growing use of smartphones and online music services has been a factor in this, as has the launch of smart speaker devices, selling in large numbers, often at a discount. According to data from consumer goods industry analysts, GfK,[64] in-home DAB radio sets sales fell by 17.8%, analogue radios by 24% and, overall, all radio devices declined by 21.1% in 2020. This trend is forecast to continue as smart speaker device penetration grows alongside the increasing choice listeners have via online audio services. This is likely to impact future investment in radio-only products resulting in some manufacturers exiting the radio market in the next five to ten years.

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62   Mediatique, Future audio consumption in the UK
63   RAJAR Q1 2020, DAB Set Ownership
64   GfK, Total radio sales volumes in Great Britain 2020. See chart at para 3.7

3.04   A key objective for the Review was to examine the state of the UK's radio device market and understand how the market for radios and connected audio devices is changing. Among the considerations were options for how industry can encourage a healthy market for radio and radio-based audio devices in the home and to identify opportunities for investment and future growth. The role of radio and audio in the car was also explored and consideration given to possible ways of developing new partnerships and strengthening the existing relationships between the UK radio industry and the automotive sectors (this aspect is covered in Chapter 4). A separate Working Group composed of the BBC, Bauer Media, techUK and the SMMT was established to review the in-home and in car market in detail.

3.05   Three separate research studies were commissioned, and more than 30 virtual individual meetings held with device makers, car manufacturers, retailers and silicon providers to understand their view of the radio/audio market and to discuss and take forward any proposed recommendations to address the decline in radio receiver take up; or whether the decline was inevitable when listening via IP is becoming an increasingly significant mode for radio listening.

3.06   Three consistent messages arose from these consultations:

- The way consumers are listening to radio will continue to change over the next 10-15 years as connected audio device technologies evolve and mature;

- DAB radios are valued but increasingly seen as one dimensional, whereas smart speakers offer greater functionality and can interact with the user, which has implications on how the device market will evolve;

- The radio industry will need to work together with manufacturers and retailers to find ways to innovate the DAB/hybrid radio receiver market in order to ensure the survival of DAB radio as a device category.

CURRENT STATE OF THE MARKET

3.07 Since the launch of digital radio in 1995, more than 27 million DAB sets have been sold in the UK[65] and two out of every three households now claim to have a DAB radio for in-home use. Around 40% of all radio listening - in-home and in-car - is now via a DAB device.[66] As digital radio services have grown and technology matured, the cost of DAB portable radios has fallen. This trend is particularly apparent over the past 10 years, as the DAB module cost has reduced costs for manufacturers while module capabilities have improved - for example, in terms of signal attenuation and energy use. Other developments, such as the emergence of DAB+ in Europe, have also been a factor. However, in spite of the evident demand from listeners for the services delivered on DAB, recent years have seen a decline in radio device sales and a slowing of DAB take up.

UK RADIO SALES VOLUME 2015-2020
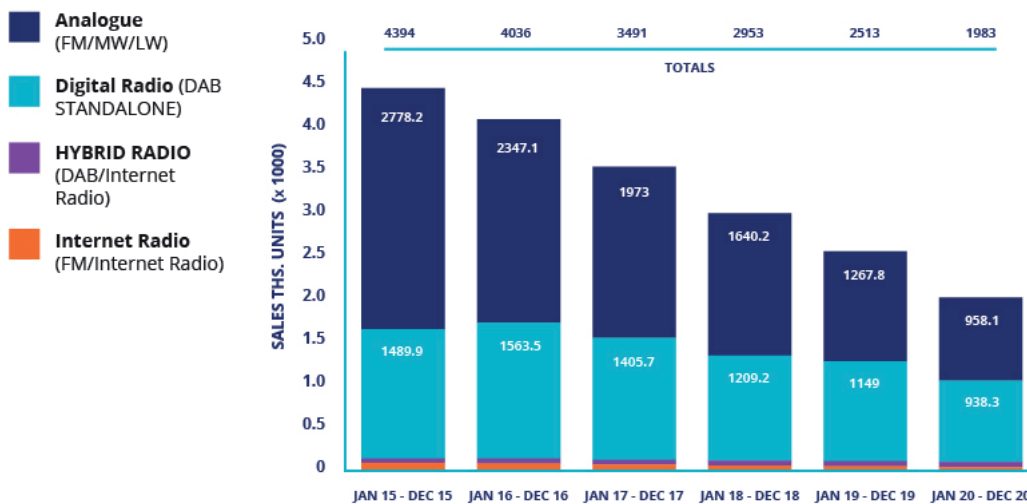
© GfK 2021 - All rights reserved | 7/2021 PRJ 70692 - RG 5288727 - RP 35038277 - ID 543501706

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65   Gfk cumulative total of domestic DAB digital radios sold in store and online in the UK
66   RAJAR Q1 2020

3.08 According to Mediatique's analysis for the Review, this is a long-term trend. Mediatique forecasts[67] that the proportion of households that regularly use DAB will fall gradually year on year from 40% currently to 32% in 2035.[68] Mediatique also forecasts that 10% of total radio sets will be replaced each year based on forecast year on year set sales. As a result AM/FM device penetration will also fall, but at a much faster rate, from 31% currently to 15% in 2035. However, as with any forecasts over a long time period using multiple variables - particularly those based on future behaviors - there is inevitably a considerable degree of uncertainty.

DEVICE TAKE UP, 2020-2035, % HOUSEHOLDS[69]
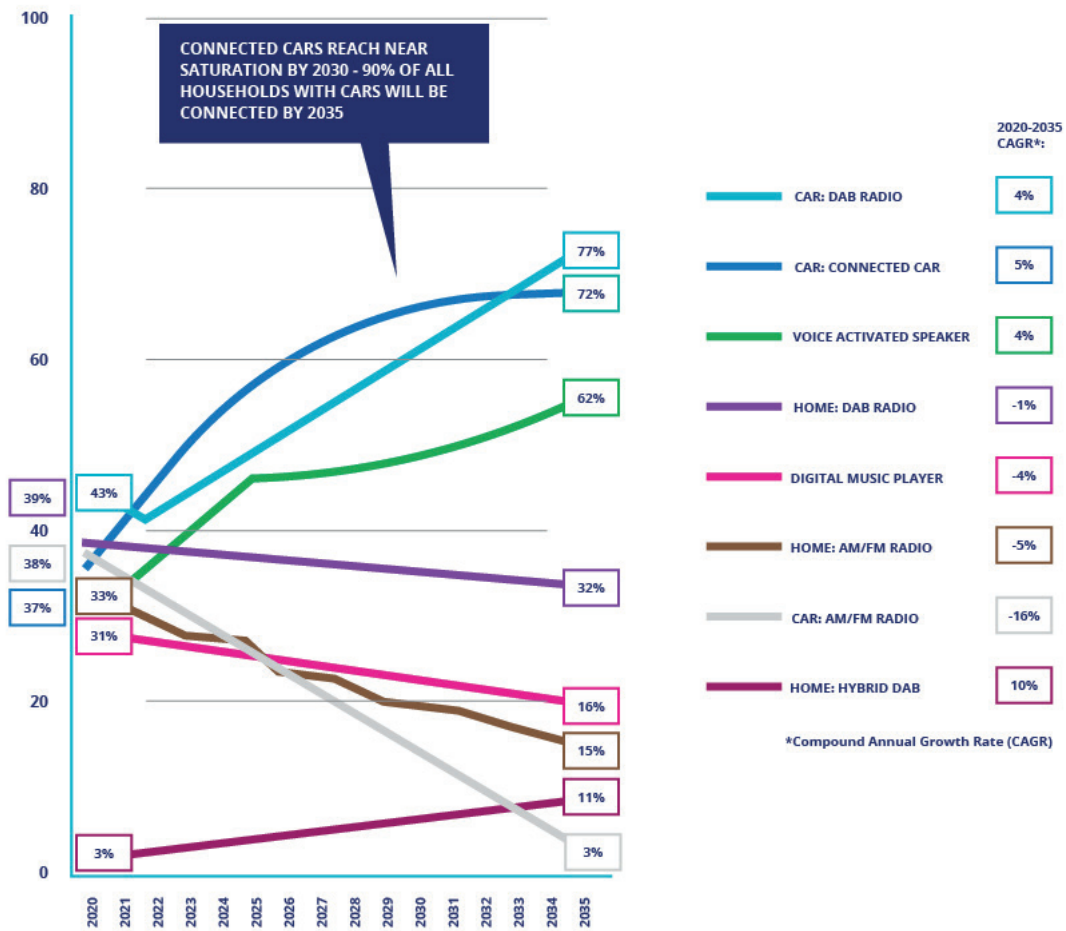
Source: MIDAS, Ofcom Technology Tracker, Mediatique.

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67   Mediatique's forecasting is informed by a detailed review of secondary research, Mediatique's own internal analysis and modelling and insights from primary research with stakeholders in the audio markets.
68   Mediatique, Ownership and use of audio-enabled devices in 2025, June 2021, p27
69   Mediatique, Ownership and use of audio-enabled devices in 2025, June 2021, p27

3.09 Whilst the dynamics of the DAB market are still subject to change and standalone purchasing of DAB sets will flatten, DAB will increasingly be built into other systems. Mediatique also forecast some growth in demand for and take-up of hybrid radio receivers (also known as smart radios). Estimates prepared by market research consultancy Futuresource Consulting show these trends from a different perspective. According to Futuresource projections,[70] ownership of DAB radios has now plateaued and may start to decline as new sales fail to maintain the installed base, implying that some owners will not replace their device when it reaches the end of its working life. Futuresource's five year forecast up to 2025 shows the annual market for DAB domestic radios will fall to 570,000 per annum, as seen in the chart below (based on the shipment of products into the UK, as opposed to consumer sales).

PROJECTIONS OF DAB SHIPMENTS[71] UP TO 2024[72]
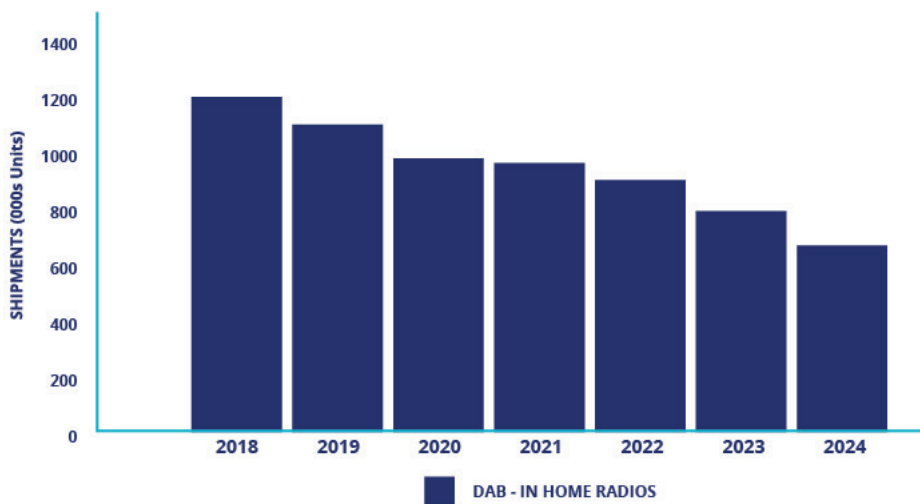
Source; Futuresource - Projections of DAB shipments up to 2024

3.10 The decline in demand for analogue and DAB radio sets has already resulted in large radio manufacturers and retailer-owned brands reducing their range of DAB models in the UK. They are finding it increasingly difficult to compete with smart speakers which, according to Futuresource, out-sold digital radios in 2019 by a ratio of nearly 5:1.[73] Connected devices are likely to continue to displace radio sets in retail. From the discussions with manufacturers and retailers which took place during the Review, the decline in DAB device sales does not appear to be driven by any single factor; rather it is the result of a convergence of a number of trends and changes in consumer behaviours:

- A radio device is now seen by consumers as one dimensional, whereas a smart speaker has multiple functions offering both radio and streaming services along with voice-activation;[74]

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70   DAB Radio & Smart Speaker Market Outlook: UK, prepared by Futuresource for the BBC, July 2020
71   'Shipments' refers to the number of devices consigned by manufacturers to channels and/or retailers
72   DAB Radio & Smart Speaker Market Outlook: UK, prepared by Futuresource for the BBC, July 2020
73   DAB Radio & Smart Speaker Market Outlook: UK, prepared by Futuresource for the BBC, July 2020
74   PwC, Consumer attitudes to devices and consideration to purchase, February 2021

- Over the past 10 years there has been limited innovation into DAB portable devices with product design and features remaining virtually unchanged, although more manufacturers are making Bluetooth a common feature;

- The consumer interface is outdated, although one technology provider has recently announced a combined station list incorporating all DAB/FM services into one list to provide a more user friendly experience;[75]

- Some supply chain constituents feel radio is now largely a replacement purchase item meaning there is no scope for market growth. During discussions, a consistent view heard was the absence of any clear plan to increase growth;

- There is also a lack of clarity about the value of the digital radio content proposition, even though the range of services has been transformed in recent years, suggesting that potential customers do not fully understand the choice of free to access services.

- Most consumers would assume a newly-purchased radio could carry all broadcast radio services. Therefore improved marketing in-store signalling radios that are DAB+ enabled is needed.[76]

3.11   In February 2021, PwC[77] were commissioned by the Review to conduct qualitative research to further understand attitudes towards smart radios and digital radio including considerations of attitudes towards the device and genuine intention to purchase equipment with DAB. The research concluded that:

- Younger digital radio owners are satisfied with their device but only use it in the room it is kept in. Despite this digital radio is not perceived to be as useful as other devices which offer multiple functions;

- Analogue (AM/FM) listeners remain happy with their analogue radio despite acknowledging there are newer and objectively better devices available;

- Using a device specifically for radio is not an established behaviour among younger audiences. They do not see the relevance/need for a specific radio device;

- Radio devices face strong competition from smart speakers and younger audiences are unlikely to consider a radio unless the 'smart' features are sold to them;

- Current radio device owners need a catalyst to encourage them to purchase a DAB radio making it a challenge for both manufacturers and retailers to encourage long-term purchasing. Sound quality and access to favourite stations are key features when buying a new radio;

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75   Frontier simplifies consumer radio by combining FM and DAB+ modes
76   PwC, Consumer attitudes to devices and consideration to purchase, February 2021
77   PwC, Consumer attitudes to devices and consideration to purchase, February 2021

- If there were to be a switch over, analogue users would be open to purchasing a new device but would benefit from more information about digital radio options.

IMPORTANT AND EXPECTED FEATURES, RADIO DEVICES
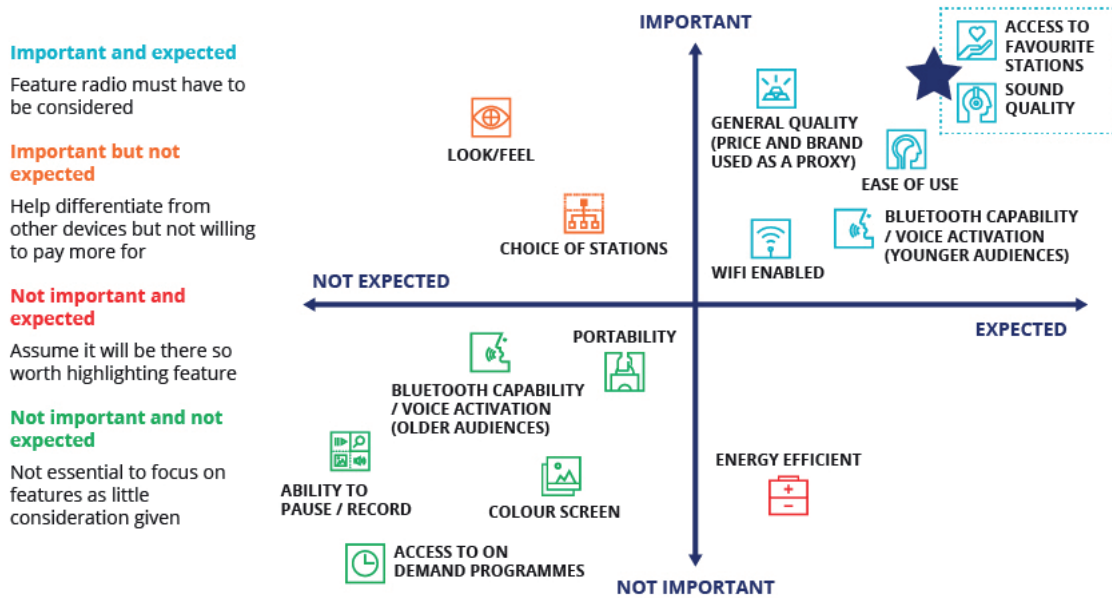
Source: PwC, Consumer attitudes to devices and consideration to purchase, February 2021

THE GROWTH OF DAB+ ENABLED RADIO DEVICES

3.12 DAB+ enabled devices[78] can access all DAB and DAB+ broadcast services available, whereas digital radios without DAB+ can only access those services broadcast in DAB. Some radio stations have migrated to DAB+ making them unavailable to those listeners who listen on DAB and do not have a DAB+ device.

3.13 The majority of new radio stations launched in recent years are transmitted in DAB+. Since 2016, nearly 70% of DAB portable radios sold in the UK are DAB/DAB+ combined and although there is no official industry measurement of DAB+ household penetration available, it is assumed that around 30% of households have access to a digital radio with DAB+.[79] Better data is needed in this respect to assess the number and proportion of active devices used in-home that have DAB+ functionality. This issue presents itself again during the analysis of DAB+ distribution in para 6.52 of Chapter 6, and is addressed by a recommendation for the government to ask Ofcom to undertake a market study to assess the current status of DAB+ device penetration (para 6.57 and R40, Chapter 6).

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78   DAB+ is more spectrum efficient with the ability to provide more services than DAB. DAB+ radio receivers are therefore able to receive all radio services.

79   These measurements are based on an extrapolation of data collected by GfK and may not be precise.

3.14   DAB+ radios are supported by the majority of device makers in part due to the minimum specification agreed in 2013 which made the inclusion of DAB+ a requirement for manufacturers to use the Digital Radio Tick Mark, the technical standards scheme managed on behalf of broadcasters and industry by Digital Radio UK. A few brands that have not implemented DAB+ have not been persuaded to meet the costs of an additional royalty fee, citing insufficient demand from their customers and the lack of a clear timetable for the closure of analogue services.[80] Clearly having radio sets in the market that are unable to receive the full range of available digital radio services has and will continue to result in consumer confusion as customers are not aware if the purchase they are making will give them access to all radio stations. In spite of the Digital Radio Tick Mark scheme, some retailers also appear unsure if a device is DAB+ capable.

DIGITAL RADIO TICK MARK SCHEME

The Digital Radio Tick Mark scheme was established by Digital Radio UK at the request of DCMS (the government's Department for Digital, Culture, Media and Sport) in 2013 to ensure that DAB digital radio receivers meet specified performance criteria and standards, including the ability to receive DAB+, and give consumers confidence when buying a device that it would be future-ready in the event of any future plan for a digital radio switchover. It is now a recognised European standard with ETSI approval.

Manufacturers voluntarily apply to be granted use of the Tick Mark (shown above) and must then put their product through testing to prove it meets the required minimum specification. Once tested and approved, the Tick Mark is displayed on product packaging, thereby giving greater assurance to consumers that the digital radio they are buying will receive all their available DAB, DAB+ and FM stations.

Digital Radio UK continues to license the Digital Radio Tick Mark to manufacturers and retailers, and the majority of manufacturers - including Pure, Roberts, Ruark, JVC, John Lewis and Sony - produce Tick Mark approved products. Digital Radio UK estimates that the Tick Mark is visible on packaging of around 50% of the devices currently available at retail.

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80   The applicability of the essential HE AAC v2 patents for DAB+ depend on the country of manufacture and the country of sale and the dates of expiry also vary from country to country; since many products are made in China the effective expiry date is in 2036.

3.15   As more radio services launch on DAB+, the industry needs to come together to agree an approach which can encourage all radio device makers to include DAB+ in their domestic digital radios and to expedite the retirement of DAB-only models. This will require broadcasters and manufacturers to work together. Prompt action is also needed to find an agreed way amongst broadcasters, device makers and retailers on the best way to promote digital radios with DAB+. Although the Digital Radio Tick Mark scheme has operated in the UK for a number of years, and indicates that a receiver meets the ETSI agreed performance standard, it has not been widely used by broadcasters as a marketing tool and as a result there is low understanding and awareness of it among consumers.

3.16   There is also value in broadcasters working with the radio supply chain to look at opportunities on the best way to promote DAB+, taking into consideration the merits of the Tick Mark and in developing a partnership with the European DAB+ logo, shown below. The European DAB+ logo is a successful marketing tool widely used in Australia, Germany, France, Italy, Austria, Switzerland, Belgium and the Netherlands, which features on DAB product packaging. It does not, however, represent any technical standards or carry the same performance criteria as the UK's Digital Radio Tick Mark and there is a risk that promoting it alone could attract low-cost poorly made products to the UK market - albeit there is currently no evidence to support this risk from other markets. There may be an opportunity to promote both the Tick Mark and the European DAB+ logo together which would help bring the UK in line with the rest of Europe and could bring value to the UK market as well as better understanding to consumers. However, it would require a commitment to support this from broadcasters.

European DAB+ logo, above.

MANDATING OF DAB AND DAB+ IN RADIO DEVICES

3.17   techUK proposed that the Review should recommend making DAB+ mandatory in all radio devices (including AM and FM only devices). This view was supported by Arqiva and by some manufacturers. Mandating DAB+ in all devices would ensure all radios sold in the UK would be capable of receiving all available radio services, and benefit listeners who might not realise that certain stations, such as talkRADIO or Capital Dance, for example, are not available on some digital radio devices. This change would help to simplify product lines and the marketing of digital radio, and would also avoid the risk of consumers buying devices that can receive limited services and in the case of AM, and in time FM services, services which may be withdrawn.

3.18   Whilst taking direct action to accelerate the withdrawal of analogue (AM/FM only) devices could provide a short-term boost in DAB sales, it is uncertain whether this would help to grow the market for radio devices overall. Given the forecasts by Futuresource about future DAB sales this is a very real concern. Some broadcasters and some radio manufacturers are also concerned that mandating DAB+ in all radio receivers could prompt consumers, particularly those wanting to replace low-cost FM devices, to move away from traditional radio devices to either listening via a smartphone or a smart speaker.

3.19   In Italy and France there has recently been a shift away from analogue radio sales with both countries recently introducing requirements for all radios to have DAB+, using the provisions of the EECC which allow for this.[81] The evidence so far on the possible effects of mandating DAB+ for all radios on radio listening is limited but more information will become available in the next 12 months which should give a clearer picture about the potential impact. This is an argument in favour of keeping this issue under review for the time being.

3.20   The Review has also considered a narrower measure: to make DAB+ mandatory in DAB-only devices.[82] As referenced in para 3.13, it is possible that 30% or more of the domestic DAB radios currently used in homes already have DAB+ capability. The importance of DAB+ in devices will continue to grow as more DAB+ services launch and the roll-out of Ofcom's small-scale DAB initiative increases opportunities for small local and community groups to launch services in DAB+. Mandating DAB+ in all digital radios (so that all digital radios can receive all available digital services) would be a logical measure to help support this shift and aid new broadcasters launching DAB+ services.

3.21   More European countries are developing DAB+ and, in tandem, silicon providers and device makers, who are pan-European in their outlook, are seeing a rapid growth in device sales in these markets, and the UK context is not replicated elsewhere in Europe. Although the installed base and listening levels to digital radio in Europe is far lower than in the UK, there are opportunities for UK organisations to align efforts around DAB+ device sale development with collaborations across Europe to bring bigger benefits to the device makers and silicon providers and minimise the disruption of mandating DAB+ in all digital radios for the UK market.

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81   Article 113 of the European Electronic Communications Code - 11 December 2018
82   In other words all DAB radios would have to have DAB and DAB+ allowing listeners to receive all digital radio services available to them.

CONNECTED (HOME) DEVICE MARKET

3.22 Radio listening started to move beyond traditional radio devices in the 1990s with the development of audio services (including streamed radio services) via the internet and the launch of digital TV services on cable, satellite and terrestrial platforms that also carried a number of radio services. In recent years the range of devices capable of carrying radio services has increased significantly with new types of connected devices allowing radio and audio services to reach new audiences at different times of the day. The growth in demand and use of these devices is closely related to improved mobile phone and broadband connectivity and the launch of new streaming services which gives access to a wide choice of content from the UK and around the world.

SMART RADIO/HYBRID RADIO

3.23 A smart radio receiver, also known as a hybrid radio receiver, is a combination of FM, DAB and IP offering the consumer more choice of radio services from around the world and additional features, while also embedding streaming services such as Spotify. This type of device has been available for some years but has low take up due to lack of consumer and retailer knowledge and demand. None of the current devices offer voice-activation and whilst this might be seen as a disadvantage, these devices may be attractive to users who have concerns over privacy. According to Futuresource, smart radio devices account for just 5% of the overall DAB market but are forecast to treble by 2024. Forecasts developed by Mediatique suggest that by 2035 up to 11% of households may own a smart or hybrid radio device,[83] which given the trends towards IP-only smart speakers, would be a positive trend for the radio broadcasters as well as manufacturers.

3.24 The PwC research, as referred to in para 3.11, found that in relation to potential smart radio purchasing:

- There is some appeal amongst younger DAB owners (under 35s) to acquire/use smart radios though none of the recipients were familiar with a smart radio and some respondents mistook it for a connected smart speaker device;

- In order to grow the smart radio market, consumers would require educating and the industry agree to a marketing plan. It is also important that the manufacturers agree on a definition of a smart radio which could also cover the inclusion of voice-activation as an added value.[84]

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83   Mediatique, Ownership and use of audio-enabled devices, p27
84   PwC, Consumer Attitudes to Devices, Feb 2021

3.25   Overall, the younger group who already use a DAB radio were interested in investigating smart radios further due to an interest in owning the latest technology but the features need to be differentiated. It is clear that this sector will have to compete against the smart speaker sector, which could be difficult, but there are potential opportunities if cooperation between radio broadcasters and manufacturers is strengthened. It was also apparent from the research that greater consumer education is needed to fully understand the functionality and value of a smart radio and the industry would need to commit to promoting such a device.

3.26   A key theme that emerged from the discussions with manufacturers, and which chimed with the PwC research findings, was the level of interest from some device makers and silicon providers to support the further development of the smart radio/hybrid radio sector. There would need to be clear agreements that an IP-enabled connected radio device should support appropriate prominence for radio and UK audio services and any consumer data collected should be shared with the content provider. As smart radio devices would need to deploy an aggregator(s) for IP services there would also need to be clear rules on how selection of content is managed and over the prominence of radio services. These issues are discussed in more detail in Chapter 5 which examines the challenge that connected audio devices, such as smart speakers, raise in relation to radio's ability to continue to reach listeners.

3.27   There is, therefore, value in establishing a small working group consisting of broadcasters, supply chain and retailers to help develop the potential of smart/hybrid radio further and maximise its consumer appeal. An initial priority task would be to agree to a clearer definition for a smart/hybrid radio receiver to ensure consistent messaging and appeal.

CONNECTED AUDIO DEVICES AND VOICE-ACTIVATED SMART SPEAKERS

3.28   There are broadly three types of connected audio devices:

- **Bluetooth enabled speakers** - connect to a smartphone and are portable as they do not need to be in range of a Wi-Fi signal and therefore tend to have a better battery life. Bluetooth only speakers effectively replaced the MP3 speaker dock but sales of Bluetooth only devices have declined as smart speakers have emerged as a separate category.

- **Smart speakers** (without voice-activation) - these devices connect via home Wi-Fi links and are generally accessible via a smartphone (downloadable) app. These devices are used for radio services via a service provider's app (e.g. BBC Sounds, Global Player, or via radio station apps), aggregators services such as Radioplayer or TuneIn, or via streaming music services such as Spotify, Deezer and Pandora. These devices tend to be used for just audio services and are produced by a number of different manufacturers.

- **Voice-activated speaker devices** - connected audio devices with voice-activated assistants were first launched in 2016. These devices are used for a multitude of tasks such

as accessing other on-demand audio content including news, weather, traffic and travel information and in controlling other electronic devices such as lighting and heating in the home. Digital voice assistants[85] such as Apple Siri, Google Assistant and Amazon Alexa are able to understand and execute a wide variety of different commands including searching for and providing access to radio and other audio content. The potential uses of these devices will grow as the technology develops and as users become more familiar with a voice-activated interface.

3.29
Smart speaker devices integrating one or more of these voice assistants are the fastest growing part of the market and by 2020 had achieved over 13 million in total sales in the UK.[86] Almost half of buyers claimed they bought a smart speaker as a more convenient option whilst over half of smart speaker owners say they would pay more to upgrade to a device with better audio quality.[87] According to RAJAR MIDAS Spring 2020, 33% of adults claim to own or access a smart speaker at home, and whilst this is behind DAB penetration at 66% of adults,[88] smart speaker adoption continues to grow. These devices are very well suited for the carriage of live radio content in homes with high-speed broadband, and according to the most recent RAJAR MIDAS survey, 64% of all audio listening hours on voice-activated speaker devices is live radio.[89]

3.30
The shift towards connected audio devices continues to grow, and voice assistant technology is now being integrated into an increasing range of connected devices, with many smart speaker devices produced by third-party electrical manufacturers now carrying a voice-activated assistant capability. This rapid transition is leading to a new ecosystem based on a growing degree of integration supported by emerging third party platforms with the ability to exercise a high degree of control over radio and other third-party services.

3.31
According to Mediatique's forecast, smart speaker penetration will grow to 62% by 2035.[90] Futuresource[91] suggests that two thirds of smart speaker sales are basic low cost models. This is expected to fall as consumers upgrade to a better sounding device, and the bridging role smart speakers perform is expected to become less important as voice assistants are integrated more into other devices around the home. Futuresource has forecast that the market for smart speakers will be sustained, with shipments continuing at a rate of over 5 million units per year, as seen in the chart below.

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85   Digital voice assistants (DVAs) are software applications that provide capabilities for oral dialogue with a user in natural language and which allow end users and business users offering voice-based apps to interact.
86   DAB Radio & Smart Speaker Market Outlook: UK, prepared by Futuresource for the BBC July 2020
87   DAB Radio & Smart Speaker Market Outlook: UK, prepared by Futuresource for the BBC July 2020
88   RAJAR Q1 2020: % adults (15+) who claim to own a DAB set at home
89   RAJAR MIDAS Spring 2020
90   Mediatique, Ownership and use of audio-enabled devices, p27
91   DAB Radio & Smart Speaker Market Outlook: UK, prepared by Futuresource for the BBC July 2020

UK SMART SPEAKER OUTLOOK – 2018-2024[92]
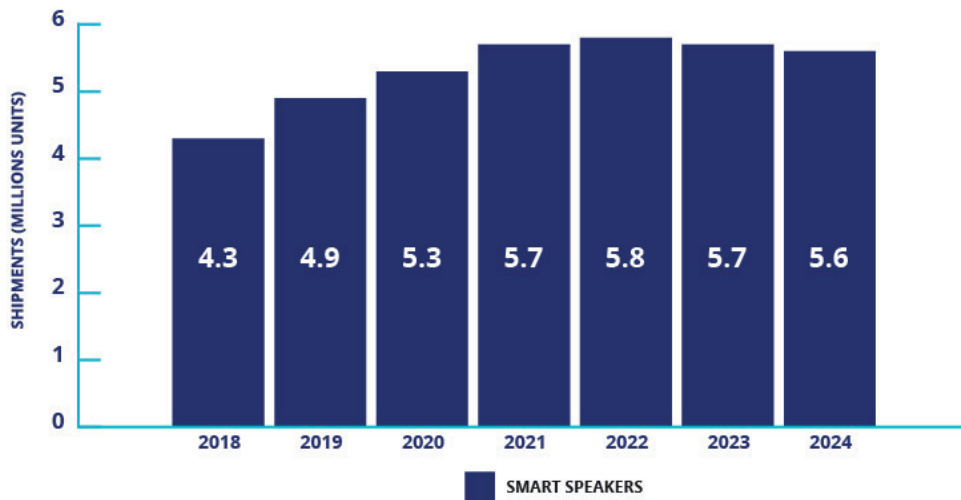
Source: Futuresource - UK Smart Speaker Outlook – 2018 -2024

3.32 Although recent estimates from GfK show a flattening of demand in the UK, there is likely to be an evolution of device capabilities and voice-activated technologies with newer, more dynamic products featuring more personalised voice-activated applications which will help sustain future device sales and - crucially - future usage.

3.33 Voice-activated speaker devices are dependent on platforms which support voice control and access to content. Amazon and Google currently dominate the UK market for voice-activated devices with 90% of users claiming they use an Amazon or Google device most often.[93] It is likely both will continue to dominate the UK market in the near term due to their marketing power and ability to subsidise the cost of the devices. Their different strategies generate valuable data about the users/household lifestyle and search habits which justifies their significant investment and innovation in developing future products. In time, there is a possibility that new entrants may emerge. Baidu and Xioami dominate the Asian markets, and although neither has yet launched an English language product, they may seek to do so at some point in the future. The growing presence of Google and Amazon devices in UK homes, their emergence as important platforms for radio services and the prospect of new entrants over the next 10 years raises a number of important issues for the future distribution of radio and audio services across these platforms. These are considered in Chapter 5.

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92   DAB Radio & Smart Speaker Market Outlook: UK, prepared by Futuresource for the BBC, July 2020
93   RAJAR MIDAS Spring 2020: Which voice-activated device do you use most often?

DIGITAL TV AND CONNECTED TV DEVICES

3.34   The UK's television market is evolving quickly with several key manufacturers now intending to launch full-service IPTV services into the UK market in the near future. There are two million homes in the UK which use IP-only devices for television viewing[94] with more consumers expected to follow especially as in-home broadband becomes stronger.

3.35   Radio listening via television has been an important platform for radio and audio consumption since the launch of digital television in the late 1990s, and 7.3 million people listen to radio services via digital TV amounting to 43 million hours.[95] This accounts for 4.4% of radio listening, but the proportions have historically been higher in areas with limited DAB or poor FM reception.

3.36   Currently radio services are listed via an electronic programme guide (EPG) but some IPTV manufacturers are believed to be considering EPGs without radio services. There is a significant risk that the loss of prominence of radio services in the EPG for radio will result in a negative impact on listening on future IP television devices and it is important that radio remains present and easily discoverable on all TV EPGs in the future. The government should consider updating the prominence regime for television such that radio retains its present level of prominence on all TV EPGs - including IPTV EPGs, or receives equivalent (or better prominence) elsewhere in the TV user interface.

CONCLUSIONS

3.37   Traditional radio including DAB is being challenged by new forms of IP-based listening, including on connected audio devices. This raises a significant risk that listeners may face greater complexity and encounter new barriers in discovering or accessing radio services even while the radio industry is investing more in new radio stations and content. According to research commissioned for the Review, the slowing of DAB sales will continue with a real risk of radio devices being harder to access as retailers reduce ranges, but there are steps which can be taken to address this. There are, for example, significant benefits from strengthening the partnerships and cooperation between UK radio (and through partnerships with European radio broadcasters) with radio device manufacturers and with retailers (traditional and online) to promote the benefits of radio and the increased choice of services available. Without a coordinated approach and support from UK radio, there is a risk that retail support – which has been critical to the success of DAB – may diminish, resulting in a slow but inevitable withdrawal of DAB radio devices from retail.

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94   In Spring 2020, 3 Reasons Ltd estimated that at the end of 2020 c.2.2m UK homes had a primary TV set only connected via IP.
95   RAJAR Q1 2020, DTV platform share, All Radio

3.38 In the light of the conclusion in Chapter 2 that FM should be retained until at least 2030, soundings were taken on whether, in spite of this, the government should be asked to mandate for the installation of DAB/DAB+ in all UK domestic radio devices in the near future (as the government did in 2019 to require all car radios fitted to be capable of receiving DAB). There are some attractions with this approach, in terms of clarifying radio's consumer offer, but there are also a number of risks - in particular that consumers may move directly to connected devices if their analogue product becomes obsolete.

3.39 Whilst mandating all domestic radio receivers to include DAB/DAB+ alongside FM could give a small boost to UK digital radio sales and digital radio listening (and some members of the Review Steering Board were in favour of this) there were concerns about the impact on listeners' access to low cost radios. The final conclusion is that the government and industry together should review FM listening uptake before the end of 2026 to consider whether legislation should be introduced to mandate all domestic radio receivers to include DAB+. However, analogue-only radios offer a very narrow choice of services with a limited lifespan with a strong likelihood of losing national AM services - such as talkSPORT, Radio 5 Live and Absolute Radio - in the next few years. Manufacturers and retailers need to carefully consider the steady decline in future FM and AM listening and factor this into their positioning of analogue-only radio devices – particularly given the now small cost to manufacturers of combining DAB+ and FM in radio sets as well as the benefits to consumers of ensuring that radio devices produced now will be future-proofed.

3.40 The emergence since 2016 of national DAB+ services (currently 25 national digital radio services are DAB+) and the growing number of stations on small-scale DAB platforms (most of which will have the majority of their services in DAB+) means there is, however, a growing risk of consumers being confused as to why a full range of services is not available on their radio. This is potentially damaging for broadcasters and retailers alike. The government should, therefore, consider introducing legislation to ensure that all new domestic radio products that include DAB will be mandated to include DAB+ by the end of 2023. This would ensure that consumers buying new digital radio equipment can have the confidence that they will have access to the full range of services available and support the introduction of new DAB+ stations in the future. At the same time this will bring the UK in line with the European countries who only have radio receivers with DAB+ in their markets.

RECOMMENDATIONS

R.14   The government to consider introducing legislation to ensure that all new domestic radio products that include DAB will be mandated to include DAB+ by the end of 2023.

R.15   Government and industry to review introducing legislation to mandate all domestic radio receivers to include DAB+ in 2026.

R.16   Industry stakeholders to review the Digital Radio Tick Mark scheme and consider whether to deploy the Tick Mark together with the European DAB+ logo in order to promote a clearer consumer proposition for digital radio devices.

R.17   Industry to continue to track developments in the audio device market to provide a better understanding of future trends affecting the development of smart radio and in-home connected audio devices.

R.18   Industry stakeholders should build a pan-European initiative to strengthen the partnerships and cooperation between broadcasters and supply chain to create a long-term growth market for DAB and smart radio devices.

R.19   The government to consider updating the prominence regime for television such that radio retains its present level of prominence on all TV electronic programme guides (EPGs) including on IPTV EPGs, or receives the equivalent (or better) prominence elsewhere in the TV user interface.

See also recommendation R42, p115, which addresses the energy use of devices.

CHAPTER 4 -

THE FUTURE OF RADIO LISTENING TO DEVICES USED IN CARS AND COMMERCIAL VEHICLES

CHAPTER 4

THE FUTURE OF RADIO LISTENING TO DEVICES USED IN CARS AND COMMERCIAL VEHICLES

Reinvigorating broadcast radio and its underpinning technologies for a future where radio's position in vehicles is increasingly challenged

INTRODUCTION

4.01 This section looks at the evolving position of radio and in-car audio and at radio's future. It considers, in more detail, how to address the risk that radio may not be present in vehicles or as prominent for motorists as it is currently.

4.02 Cars and commercial vehicles have traditionally been an important listening environment for broadcasters and for listeners. Around a quarter (24%) of radio listening takes place in the car and over 65% of people listen to a radio service in a car every week.[96] However, drivers across the UK are increasingly using their smartphone to connect to music streaming content and connected cars are bringing more competition to radio with a choice of apps and voice control and the improvement of 4G coverage and the introduction of 5G services. Connected cars are also changing the way users are listening to radio services.

4.03 This shift in both consumer behaviour and device technology has the potential to marginalise or exclude radio services from the digital car dashboard due to exclusive arrangements between car makers and digital platforms. As the technology evolves, it will be important to ensure that motorists are able to continue to benefit from access to high-quality free-to-air radio services and live radio services.

IN-CAR DAB/DAB+

4.04 At the moment, radio holds a strong position in-car due, to a large extent, to the role the SMMT and its members have played in acknowledging the importance of radio and in supporting an effective partnership with the UK's radio industry since 2010. As a result of these efforts, virtually all new cars sold in the UK now have a DAB/DAB+[97] radio fitted as standard (up from practically zero in 2010) and this change has helped to support the development and roll out of new national radio services. In spite of a

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96 RAJAR Q1 2020
97 Unlike the majority of digital radios in homes, the vast majority of digital radios in cars (and all new cars) are DAB+ as well as DAB, and so can receive all digital radio services available in a given location.

29% year on year decline in new car sales due to the COVID-19 pandemic in 2020,[98] Digital Radio UK has forecast that 48% of all UK cars in use will be fitted with DAB+ by the end of 2021, the highest in Europe apart from Norway (which switched off its national FM services in 2017). Alongside this, 79%[99] of new commercial vehicles now come with DAB+ as standard and around 20%[100] of all commercial vehicles on UK roads are fitted with DAB. However, the shift to standard DAB+ fitment has coincided with a decline in aftermarket digital radio products as it becomes ever harder to integrate these devices into modern car dashboards.

4.05 The European Electronic Communications Code (EECC),[101] which came into force in December 2018, included a requirement for all car radios to be DAB+ enabled. The UK had already made strong progress with more than 95% of new cars having DAB/DAB+ fitted as standard prior to the EECC coming into force. Nevertheless, the government decided to adopt the new EECC requirements that all cars sold in the UK with an installed radio device must provide DAB as standard.[102] These requirements came into effect in December 2020. The changes have clarified the long-term position for the UK industry but have had a much more marked effect on the European car market where DAB+ standard fitment was much lower across EU countries. DAB+ installation in new cars across key European markets has consequently risen from 42% of cars to 80% in 2020.[103]

4.06 In spite of the progress made, the role of radio in cars and other vehicles has begun to change due to greater choice of content, competition from music streaming companies, and the larger tech companies entering the space with the potential to exercise control over the car dashboard, thus presenting a risk to radio's prominence and raising questions, which the Review considers later, about the need for greater protections for radio's prominence in cars and other vehicles.

4.07 There are, however, a number of areas for innovation and improved features in the DAB offer in-car. The current user experience, in particular, needs improvement to ensure that radio stations are accessible by station name rather than by multiplex, making them easier to find. At the moment, basic metadata only is provided by broadcasters and this needs to be improved upon to make the listening/user experience richer and to demonstrate the value of radio. In addition, the continued roll out of DAB+ should be supported with better coordination between European broadcasters and the automotive market, including the sharing of information on new services and changes in distribution, and the availability of metadata.

4.08 Although digital radio is now mandatory in new passenger cars where radio is installed, there is no equivalent obligation to fit DAB/DAB+ in commercial vehicles. The Review examined whether there is a case to mandate DAB/DAB+ inclusion in radios fitted in commercial vehicles. Whilst this measure would be supported by radio broadcasters, the SMMT disagrees and has made clear that they would not support the requirement for mandatory fitment of digital radio to be extended to commercial vehicles - citing the unnecessary burden and cost in a price-sensitive market. The SMMT believes that the market is already

98   UK automotive looks to green recovery strategy after -29.4% fall in new car registrations in 2020
99   According to CAP/SMMT data for Q2 2020, the most recent data available.
100   Digital Radio UK estimate based on historic CAP/SMMT data up to Q2 2020 and DRUK estimates thereafter.
101   EU Directive 2018/1972 establishing the European Electronic Communications Code, 11 December 2018
102   The new requirements were part of the Road Vehicles (Approval) Regulations 2020, Regulation 22
103   WorldDAB, DAB+ radio: as standard in new European cars

moving towards universal DAB installation with 79%[104] of new commercial vehicles having digital radio installed as standard. Instead they argue that decisions on the fitment of radio should be a matter for the manufacturer, reflecting consumer demand and the continued development and evolution of the in-vehicle listening experience.

4.09 However, the shift from analogue listening and forthcoming consideration about the future of AM services (as discussed in Chapter 6) could lead to a loss of stations including talkSPORT, Absolute Radio and BBC Radio 5 Live for listeners using commercial vehicles. Broadcasters will continue to ensure that commercial vehicle manufacturers are kept fully informed on future distribution changes in the UK and should continue to work closely with manufacturers to encourage the fitment of DAB/DAB+ in all radios fitted to new commercial vehicles and to continue to increase the rate of standard fitment.

4.10 Currently, the fitment of DAB+ in radios in commercial vehicles is not mandatory in any European country. In the longer term, there is a possibility that the EU may decide to extend the existing requirements mandating DAB+ to include radios installed in commercial vehicles as part of a review of the European Electronic Communications Code (EECC), which is due by the end of 2023. If so, vehicle makers may prefer to extend the current car radio mandate to ensure consistency across European vehicle markets. Given the differences of views between radio broadcasters and the SMMT, the Review's conclusion is that the government should keep the position on the mandating of DAB+ in radios installed in commercial vehicles under review and take account of changes to the EECC or, if none, consider independently of the EECC, no later than 2023.

IN-CAR HYBRID RADIO

4.11 Hybrid radio (combining broadcast and IP) is expected to become more central and widely adopted by car manufacturers over the next five years. It potentially offers the best of both worlds switching between broadcast (cost effective, reliable and robust) and IP, providing metadata, visuals and interactivity. Broadcast radio is the 'backbone' of a hybrid radio offer and the addition of IP gives the consumer a much richer and deeper listening experience and also presents new ways of delivering additional content from the broadcasters. Hybrid radio solutions could also help ensure the longevity of radio in cars by improving the radio experience for users whilst providing a framework to ensure that radio services remain easy to access alongside other audio services.

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104   CAP/SMMT Q2 2020

HYBRID RADIO IN-VEHICLE PROVIDERS

Radioplayer, formed by the UK radio broadcasters, and Xperi are the two major players in the market.

RADIOPLAYER

Radioplayer was established in 2010 as a way to offer simple and accessible listening to radio online. It is a not-for-profit venture between the BBC and commercial radio broadcasters (its current shareholders are the BBC, Global, Bauer Media and Radiocentre). Since 2014 it has licensed its technology to consortia of broadcasters in other territories and has partnership agreements with 14 other countries. In recent years, Radioplayer has been significantly expanding its activities using its back-end technology to deliver broadcaster metadata to vehicles to power hybrid radio. This allows drivers to seamlessly switch between FM, DAB/DAB+ and streaming while providing a richer and more visual experience.

Radioplayer has signed partnership agreements with VW Group and BMW Group, which together represent a third of all European car sales, and has produced a hybrid radio app (DAB, DAB+, FM, Internet) in Android Automotive which can be adapted by car companies for free or at cost.

XPERI

Xperi has developed its own DTS AutoStage solution, which provides content from over 70,000 radio stations in 68 countries and can be used globally. Xperi's business model relies on licensing metadata to car companies. It is able to access music metadata from TiVO providing 40 million tracks and song lyrics and is also supported by a global 24/7 engineering and operations support team.

The DTS AutoStage solution also provides podcasts and event information and collects consumer data which they can share with broadcasters. It is currently working on how to provide sign-in and deep-linking on behalf of broadcasters. This platform is funded by Xperi, available to all broadcasters at no cost, and ensures broadcasters maintain editorial control of their content. Given its scale, business model and commitment to broadcast, DTS AutoStage provides a workable solution for global tech companies such as Alphabet, Amazon, Apple, Facebook and Microsoft, and for radio broadcasters in connected cars.

4.12 So far only Audi and Mercedes have implemented hybrid radio with Audi developing their own solution in partnership with Radioplayer and sourcing metadata content from a variety of sources to deliver hybrid radio functionality, including the open standard for hybrid radio metadata developed by RadioDNS.[105] Mercedes has adopted the DTS AutoStage solution owned by Xperi. There are plans by other leading car brands to roll out hybrid radio. The Review does not specify any preference for solutions but for a fully hybrid radio solution to work, it is important there is consistent, rich metadata that facilitates a seamless

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105   RadioDNS promotes the use of open technology standards to enable hybrid radio. The core technology standard relies on the Domain Name System (DNS) to allow a connected radio receiver to look up IP resources based on their broadcast parameters. Members include Alps Alpine, Audi, BBC, EBU, Global, iHeart Media, NAB, Pluxbox, Radioplayer and Xperi.

listening experience without the user experiencing time delays between broadcast and IP modes. It is also important to the broadcasters that they can have access to any consumer data arising from a hybrid radio solution.

4.13 The radio industry needs to collaborate more with car makers and demonstrate the opportunities and challenges that the hybrid radio market presents and the potential to offer valuable metadata to provide personalised and interactive services. Support for hybrid radio from radio broadcasters is increasingly vital to keep radio robust and prominent and to help deliver deeper engagement to the listener. However, the Review acknowledges that the rapid development of technology in-car and the potentially dominant position of large global technology organisations means that radio is likely to require some form of protection to retain its prominence and accessibility.

4.14 The car dashboard continues to change rapidly as advances in technology and mobile connectivity support increasingly complex services such as emergency communications and assisted control, and car manufacturers develop strategic relationships with tech companies like Amazon, Apple and Google. Mediatique has forecast that by 2035, 90% of households with cars, or 72% of all households, will have access to a connected car.[106] Nearly 13.5 million cars on the road are expected to have mirroring solutions such as CarPlay and Android Auto as standard by 2025.[107] These systems allow users to tether their smartphones to the car, giving them access to non-radio content and use of their own phone navigation system, apps and music stored on their phone. The use of streaming is widespread but there are some mixed views from users around poor coverage and data costs.[108] Both solutions work by connecting the phone via a cable or Bluetooth. Mobile plans permit increasing levels of data consumption meaning that previously prohibitive streaming costs are becoming less of an issue.

4.15 Radio listening is likely to change dramatically within the connected car as drivers and passengers are able to access music streaming and other audio content services. The connected car will also have a further major impact on the way people discover, search for and consume media content as they travel. Live radio has relied particularly on in-car listening but this will change as manufacturers adopt operating systems that will control how consumers find and select content.

4.16 Car manufacturers are facing many challenges and, in addition to the mirroring solutions described above, they have been developing their own operating systems for infotainment. The first cars with Google's Android Automotive Operating System came onto the market in 2021 following a period of development and more carmakers are now considering adopting that solution rather than developing their own software which is resource heavy and not cost effective. These systems allow car makers, who are keen to reduce the reliance on smartphone connectivity in the car, to maintain better control of the users' experiences and identify opportunities to drive revenue. However, adoption of Android Automotive has the effect of giving Google a gatekeeper role between the car maker and content providers and their customers. For example, this may require the car maker to favour Google's own services and content (e.g. YouTube music, Google podcasts, Google Maps, Google Assistant) if they want to maintain control over data and avoid a situation where car makers simply end up providing 'devices' for the operating system and connected services to sit in.

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106   Mediatique, Ownership and use of audio-enabled devices in 2035, June 2021, p27
107   Futuresource, Trends in radio and audio consumption in the UK, p47
108   Futuresource, Trends in radio and audio consumption in the UK, p47

4.17 The challenge that connected cars pose to radio broadcasters is multifaceted and includes the mediation of distribution by connected platforms as listening moves from analogue to digital channels. The connected car is an opportunity for service providers to capture data about the car user and offer additional services for practical and entertainment purposes. Connected cars will also see a more important role for the larger tech companies. As the number of in-car entertainment and information options continues to increase, despite audience expectation and appetite for radio, there is a risk that commercial pressure and platform interest could create pressure to remove radio from its front and centre position on drivers' dashboards. In this context the issue of inclusion and prominence of radio on in-car infotainment systems and on mirrored phones is particularly important.

4.18 The risks for radio are apparent in the recent Volvo Polestar 2 model, the first car to embed Google's operating system, which supports FM and DAB+ but does not support hybrid radio functionality. Radioplayer has built one of the first hybrid radio applications in Android Automotive and written an evaluation[109] informed by the learnings, which highlights what needs to be done to improve the broadcast radio experience and make it hybrid. A consortium led by NAB PILOT[110] and supported by European broadcasters, including the BBC and Bauer Media in the UK, is also advocating for improvements with the integration of radio within Android Automotive. The goal is to ensure that Android Automotive has proper support for broadcast radio to flourish in an increasingly connected and competitive car dashboard and that Google recognises the value of radio. NAB PILOT's second phase of work will focus on hybrid radio to make it a distinct, high-quality and richer personalised experience in Android Automotive and connected cars. Google's operating system will collect extensive data about the driver and passenger and will be able to use that for commercial purposes such as advertising. It is unlikely they will pass the data on to the content creators. This not only limits the ability of all content providers to use the data to maintain direct relationships with listeners and improve services, it also limits the ability of commercial operators to generate income.

4.19 A similar challenge comes from the rise of voice assistants in the car. This capability is growing rapidly with a mix of Amazon Alexa, Google Assistant and the car manufacturer's own branded voice assistant, and with many manufacturers now installing noise-cancelling microphones to address speech recognition challenges. It is important for car manufacturers that they control the core car commands and information about the car performance and user habits. Voice will become fundamental and will continue to lead to significant innovation. It is expected that nearly two thirds of new cars will have voice assistants by the end of 2023.[111]

4.20 A study by J.D.Power/Alexa Automotive in 2018[112] suggests that 76% of users prefer the same brand of voice in-car that they use in-home, providing an opportunity for Google, Apple and Amazon. All three tech companies are collaborating with car makers directly to embed their voice assistants. Amazon has also launched their Amazon Echo Auto for the car which connects to Alexa through the user's smartphone Alexa app and is connected via Bluetooth or via auxiliary input. This 'adaptor' also has the ability to turn off the microphones and delete recordings thereby giving more protection to user privacy. Spotify

109 Radioplayer, Building Hybrid in Android Automotive,
110 NAB PILOT is a US-based coalition of innovators, educators and advocates dedicated to advancing broadcast technologies and cultivating new media opportunities. [https://nabpilot.org/]{.ul}
111 Futuresource Trends in radio and audio consumption in the UK, p56
112 J.D. Power: Voice is a Deciding Factor in the Vehicle Purchase Decision

has launched Car Thing which is a music streaming device connected via USB cable or Bluetooth in the car allowing the user to access their Spotify account. This is currently only available in the USA but is expected to launch in Europe within the next 12 months. This will provide yet more competition for radio/audio in the car.

4.21 Voice assistants come with a range of discovery and prominence issues as set out in Chapter 5, and in notable contrast to the hybrid radio solutions currently in market, voice audio solutions do not share consumer data equitably with content providers, impacting the service that can be delivered and potentially preferencing big tech streaming platforms. These themes are explored in greater detail in Chapter 5.

ADDRESSING THE LONGER-TERM CHALLENGES FOR RADIO IN CARS AND COMMERCIAL VEHICLES

4.22 The level of continuing support for broadcast radio expressed by automotive manufacturers during the Review was encouraging. However, car manufacturers are responding to a changing market and embracing innovation by introducing features to meet the new demand they are seeing from younger generations who want to listen to their own music and podcasts. As music streaming platforms grow, further innovation is needed to make more use of enabling technology being developed in-car.

4.23 Against these trends, broadcasters will need to lead with a clear message as to why broadcast radio is so important and should continue to be installed as standard and in a way which continues to be prominent and easy to use. To support this message, broadcasters need to consider providing unique niche content aimed at younger drivers in particular and providing content suited to different lengths of journey. They also need to have stricter standardisation around the use of logos and agree a coherent strategy for service following and soft and hard service linking[113] which can be easily implemented by the car makers.

4.24 Alongside this, in light of the likely growing market presence of platforms such as Google, Apple and Amazon in-car, there is a growing need to consider whether the new requirements on car manufacturers to install DAB/DAB+ in car radios should be extended to formalise prominence in connected-car environments and help support hybrid solutions which, if effective, would help maintain radio's position without reliance on regulation. In time, the pressures on car manufacturers from platforms to exclude radio will grow and therefore intervention to pre-empt this is needed to promote radio's presence and prominence in the car.

4.25 The challenges for radio, looking at the longer term, are significant ones. The in-car listening environment is vital both for broadcasters and listeners and there is a growing case, given its value to motorists (including robustness of signal, free-to-air service, easy access and availability in times of emergencies), and the public value it delivers, that radio should be protected against any omission or technological

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113 Service following is the term applied to maintaining the same audio or data content (hard linked) or associated audio or data content (soft linked), in spite of the varying reception conditions, or while roaming between multiplex areas.

consequence of new developments. Broadcasters also argue that the impacts on consumers of a reduction in radio prominence cannot easily be undone, given the long development times for cars and commercial vehicles. The SMMT has put forward its view, during the Review discussions, that regulation is not an appropriate mechanism for ensuring the prominence of radio in vehicles; rather that regulation of vehicle manufacturers should remain the sole preserve of safety, security and emissions functions. The SMMT argues that prominence of radio on the dashboard should be a matter for the manufacturer, reflecting consumer demand and the continued development and evolution of the listening experience through various media supported by cross-industry initiatives.

CONCLUSIONS

4.26
In the light of the SMMT's position, the Review is unable to reach a consensus view on the issue of whether there should be requirements on car manufacturers to give formal prominence to radio in cars or commercial vehicles (including vehicles with on line audio systems) at this point in time. Therefore, the Review's conclusion is that the focus should instead be on stepping up work with European and global broadcaster colleagues (given the pan-European nature of car and commercial vehicle markets) to agree on a way forward working closely with car manufacturers to secure arrangements by agreement. It is noteworthy that European broadcasters share the same concerns and believe a strong broadcaster-led consortium/alliance could be extremely beneficial.

4.27
However, the consensus view from broadcasters is that the shift in technology will, in the medium to long-term, require new regulation to be placed on car manufacturers to protect radio's route to its listeners. Without this, there is a real risk that essential radio services, highly valued by listeners when travelling around the UK, will not be easily accessible for future motorists. Whilst there are options at the moment for industry initiatives to provide for radio services continuing to be carried and be prominent in cars and commercial vehicles, the government should keep this issue under active review. This is in addition to possible measures on online audio platforms whose services are carried in cars - an issue discussed at greater length in the following Chapter.

RECOMMENDATIONS

R.20   The government to consider the position on mandating DAB/DAB+ in commercial vehicles in the light of any changes to the European Electronic Communications Code (EECC) or, if none, consider independently of the EECC, no later than 2023.

R.21   Radio broadcasters should increase cooperation with European/global broadcaster colleagues to ensure that radio is assured prominence in cars (delivered via broadcast and/or IP) through industry discussion and collaboration.

R.22   Radio broadcaster members of the Review Steering Board believe the government should - as part of future legislation on public service broadcasting prominence - also consider whether new powers are needed to protect radio's prominence in cars and other vehicles. This would balance the growing bargaining power of connected platform providers and their increased ability to use this to negotiate exclusivity of their own platforms in cars and therefore downgrade the prominence of access to broadcast radio services. However, the SMMT does not agree and believes regulation of vehicle manufacturers is not an appropriate mechanism to achieve prominence for or access to particular services in-vehicle. See also R25c, p91.

R.23   To support hybrid radio to keep radio robust and prominent and delivering deeper engagement to the listener including the provision of richer metadata from broadcasters; and support for a coherent strategy for soft and hard service linking which can be easily implemented by the car makers.

CHAPTER 5 -

DIGITAL AUDIO PLATFORMS AND VOICE-ACTIVATION

CHAPTER 5

DIGITAL AUDIO PLATFORMS AND VOICE-ACTIVATION

The opportunities and the challenges for UK radio and audio industries

INTRODUCTION

5.01 This chapter considers the impact of connected audio device technology such as smart speakers, in-car audio systems and digital voice assistants,[114] and how the emergence of digital audio platforms that underpin these technologies is likely to shape the way that UK radio and audio develops in the next 10 years and beyond.

5.02 As discussed in Chapters 3 and 4, the growth in adoption of connected audio devices[115] (both in home and in vehicle), alongside improvements in connectivity, has given millions of UK listeners new ways of receiving live radio and streamed and podcast audio services. In parallel, the rapid growth in usage of voice assistants has begun to change the way in which audio services are discovered and accessed on these devices. Voice assistants are also accessed through other devices such as smartphones, smart TVs and connected vehicle dashboards.

5.03 The transition of UK radio listening to connected audio devices has, so far, been a positive experience for listeners. These devices have opened new routes for listeners to access live radio and other audio content and provided new avenues for content creators to reach audiences with podcasts and other audio output. This is a long-term trend and will increase the role of intermediary platforms and content aggregators,[116] that facilitate access to content for listeners but whose platforms disrupt traditional relationships between radio broadcasters and the end user, potentially limiting radio's ability to reach audiences. There is a further set of issues in relation to devices operated using voice assistants where content provided in response to a listener's request is subject to a greater level of control by platform operators and little meaningful listener or performance data is accessible to content providers.

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114   DVAs are software applications that provide capabilities for oral dialogue with a user in natural language and which allow end users and business users offering voice-based apps to interact.

115   The term 'connected audio devices' describes a variety of consumer electronics connected to the Internet for the primary or secondary purpose of streaming Internet-delivered audio content such as music, internet radio or podcasts - it includes smart speakers, connected radio devices and in vehicle audio systems.

116   Radio service aggregators are generally third parties that provide access to streamed radio services available internationally. Examples include TuneIn, vTuner, Media U, airable and Radioline.

5.04 As outlined in Chapters 3 and 4, the available information on the adoption and use of connected audio devices suggests that access to UK radio and audio content is transitioning from being free and open to listeners to being intermediated and potentially commercialised at the point of access. While the longer-term picture is open to a wide degree of uncertainty, the trends seen so far do raise some significant issues for the UK radio and audio industry. Specifically, these are structural changes that call into question the ability of radio and audio to thrive in an environment where access to listeners may be subject to restrictions and controls by platforms. There are two future scenarios for how relationships might develop:

> **Coexistence** - where BBC and commercial radio services continue, alongside community radio, to reach audiences without restrictions and are able to adapt business models and distribution strategies to reflect changes in listener behaviour through more personalised output and targeted advertising;

> **Contraction** – where the increasing dependency of radio broadcasters and listeners on platforms creates barriers – such as a lack of findability, discoverability and prominence or restricted access to data creating an unlevel playing field – resulting in a contraction of UK radio listening and a shift from UK-originated content to more generic audio with profound implications on choice and plurality.

5.05 There is an opportunity - in the coexistence scenario - to secure much of the significant public value currently provided by UK radio and audio for the longer-term, with benefits not just for listeners and UK radio but also for the platforms and with minimal disruption to their operating models. This chapter considers whether changes to the overall framework of regulation of radio services is needed to ensure a mutually beneficial relationship between UK radio and third-party platforms and aggregators that have acquired a gatekeeper role and who are likely to be important partners in radio's future.

CURRENT STATE OF THE MARKET

5.06 The emergence of new ecosystems for connected audio devices and voice assistant platforms has been rapid. As described in Chapter 3, the first smart speaker devices with voice activation appeared in 2016. Since then growth has been rapid with 33%[117] of adults now having access to a voice-activated speaker device. According to RAJAR MIDAS Spring 2020, around 6% of all radio listening is already via voice-activated platforms, contributing to the faster growth of IP-based listening. Mediatique forecasts that IP listening will account for between 32-40% of all radio listening by 2035, of which as much as 68% may be via a smart speaker.[118]

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117   RAJAR MIDAS Spring 2020
118   Mediatique, Future audio consumption in the UK (update), December 2020, p13

5.07

The platforms operated by Amazon, Google and Apple are already proficient in facilitating listener access to UK radio services and are driving the vertical integration of different services. This adds value to the platforms' wider product portfolios by giving them a channel for supplying complementary, and competing, services. Over time, the technology will allow even more sophisticated interactions. The further development of technologies, particularly those allowing for greater personalisation of voice assistants, will further challenge the ability of players within discrete parts of the audio ecosystem – such as the BBC and commercial and community radio stations – to access listeners without any undue interference and on a free-to-air basis.

DIGITAL VOICE ASSISTANT DEVICES AND SUPPORTING PLATFORMS

Digital voice assistants (DVAs) - such as Amazon Alexa, Google Assistant and Apple Siri are software applications that provide capabilities for oral dialogue with a user in natural language and which allow end users and business users offering voice-based apps to interact. DVAs are installed on an increasing variety of devices, such as smart speakers and mobile devices, and in-car infotainment systems, but operate separately from devices they are installed upon.

DVAs are different to search engines which merely allow users to carry out voice searches instead of typing a search term, in that they are not directly connected to or ancillary to another service. Voice assistants have an (increasingly) independent role, allowing users to use them for a whole range of tasks and being able to have an influence on how products and services are provided or presented to users, intermediating between them and (voice-enabled) app developers.

There are generally two types of voice assistants available: general and specialised. General voice assistants - such as Siri (Apple), Alexa (Amazon), and Google Assistant are able to respond to queries and interact with a range of applications. Specialised voice assistants focus on a specific area - such as banking - where a limited vocabulary can be utilised for specific responses. An example of the latter is Snips, a voice assistant created by Sonos, which specializes in commands for playing music on smart speakers.

Voice assistants interact with users by being able to receive and recognise a specific request and respond through a voice response. The first step is to deliver the 'wake word' - such as 'hey Siri', for example, on iPhones - designed to activate the system. Once activated, a voice assistant can execute a command, which triggers a voice application, and an action (e.g. playing a radio station or playlist). Voice activation can be used across different devices and provides a wider range of uses beyond simple commands and audio requests. For example, Google has already started piloting a voice assistant restaurant booking service.

VOICE ASSITANT ECOSYSTEM[REF7]
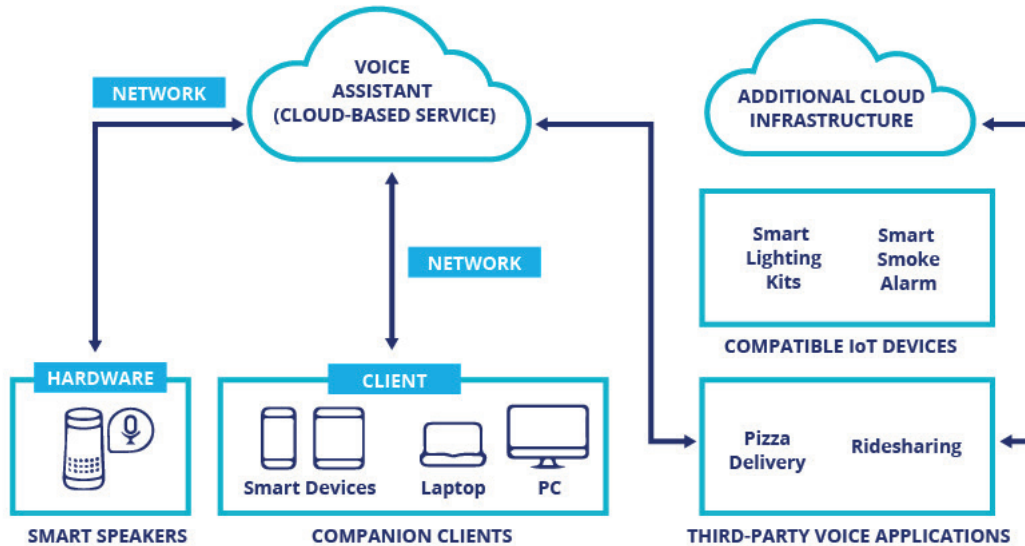
Voice assistants have grown in popularity over recent years due to technological advancements in natural language processing. The smartphone and smart speaker are the two main portals for voice assistants. Apple and Google lead in the smartphone market, and Amazon leads in the smart speaker market. The uptake of voice assistants in in-car infotainment systems is also steadily increasing.

Ref7   Illustration based on a diagram published in the Subcommittee on Antitrust, Commercial and Administrative Law of the US Committee of the Judiciary Majority Staff Report: Investigation of Competition in Digital Markets, October 2020

5.08 The emergence of connected audio devices has been a strong benefit for listeners, giving them much greater flexibility and choice to access online audio services. In addition, voice interfaces provide a new and attractive and practical way for many disabled listeners – including the blind and partially sighted – to interact with radio and audio channels in a way that traditional FM and DAB radio devices are not currently able to match.

5.09 For the BBC and commercial radio, smart speakers and other voice-enabled devices provide a new and interactive way of reaching new audiences. They also open up theoretical opportunities – dependent on access to data – to personalise services to the needs of each listener (or, in the case of commercial radio, enabling targeted advertising, which may be attractive to advertisers). The UK's growing independent content production sector benefits from the increased availability of ways to reach audiences via connected devices with audio capability. Commercial radio has also begun to develop a variety of strategies to explore potential opportunities, developing new commercial partnerships with these platforms, and sees these partnerships as critical to generating new revenues and opportunities.

5.10 The BBC and commercial radio are able to draw on radio's many traditional strengths: the live nature of output, high quality of curation, trusted news output, appeal of presenter talent, listener demand for shared experiences and companionship, and scope for interactivity, as well as their existing brand and heritage and listener loyalty. As the UK's audio market continues to evolve and competition increases, radio broadcasters will need to continue to develop and grow their online services to meet the changing expectations of audiences in a connected environment (this, in turn, has consequences for investment in broadcast platforms). For commercial radio this means updating requirements for their digital advertising offerings to meet evolving advertiser expectations. These expectations – which are informed by the capabilities of other digital advertising platforms provided by global technology platforms, social media networks and digital publishers – include improved measurement, accountability, targeting and addressability. With devices in over a third of UK homes, smart speakers are now absolutely critical for reaching listeners especially with new services.

EMERGING ISSUES FOR THE UK RADIO INDUSTRY

5.11 The BBC and commercial radio have responded by ensuring their live radio services and streamed content are available on smart speaker devices and platforms and this work has been done alongside traditional distribution activity. The BBC and other larger broadcasters and publishers advise that they have moved to establish additional direct relationships with the platforms, through 'skills' or 'actions' (rather than wholly relying on TuneIn, the default aggregator of radio services on voice-activated platforms). These agreements have given broadcasters some (albeit limited) flexibility to develop services carried via voice-enabled devices and other online audio platforms, and to manage issues which come with providing services on these platforms. While these arrangements provide some benefit, neither the BBC nor larger groups have been able to secure satisfactory agreements for access to listening data or prominence for the carriage of their services. This is one of a number of developing issues affecting UK radio.

> **Access to data and listener consent** - Platforms apply restrictions on the amount and types of listener data[119] that they are willing to share with the third-party radio stations they carry, and appear unwilling to take steps to ease the process of user consent, often citing this as a reason for the inability to share such data. The effect on UK radio, as more and more listening shifts, could be profound, and impacts on the ability of commercial radio to monetise its content and of radio providers as a whole to adapt to meet the needs of listeners. Opening up access to data to radio services carried on connected audio platforms would be in line with Mission 1 of the government's National Data Strategy which seeks to unlock the value of data across the economy.[120] In the absence of reforms in this area, platforms will be able to continue to realise value from this data and secure a competitive advantage over radio broadcasters who will continue to be unable to monetise their audiences fully.

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119   This data may include both audience data (e.g. listening behaviour) and commercial data (e.g. engagement with advertising) from radio listeners.

120   National Data Strategy - 9 December 2020

Limitations on personalisation - Whilst platforms have developed interfaces to allow for direct arrangements (which for Amazon Alexa are known as 'skills') the platforms place limits on the degree to which UK radio can develop and adapt services. An important example of this links to the integration of radio with the alarm function which restricts radio being used for wake up calls.

Limited interoperability - Digital voice assistants employ machine learning to develop preferences and personalisation, however there is little infrastructure allowing for the transfer of 'learned preferences' between devices or operating systems. Amazon's Voice Interoperability Initiative involves other partners such as Garmin, Sonos, Xiaomi and Baidu but so far, fellow market leaders Google and Apple have not been involved. As the market matures this is likely to have negative impacts on consumer choice.

Findability, discoverability and prominence - The growth of connected devices and digital audio services increases the risk that radio broadcast content will be lost on connected platform devices. Unlike screen-based devices (smartphones, tablets and laptops), voice-controlled interfaces present more challenges for listeners in finding content. Some broadcasters are concerned that their services are being downgraded in voice search while other services are upgraded through paid promotion. There have been some examples of audio listeners who request access to certain licensed radio stations (using a voice assistant) being redirected to a connected platform's own (radio-like) services, and difficulties for stations in being able to correct this.

Dissemination of news content and attribution - The platforms provide access to news bulletins; these are accessed from news services *('Play news from the BBC')* or via an aggregate arrangement (*'Turn on the news'* or *'What's the morning news'*). News services are created by each platform's own algorithms through processes which appear to lack transparency for news providers who allow their content to be aggregated. UK radio news organisations have raised concerns about the lack of attribution when their content is used in this way and about the risk that their contribution will appear alongside news items containing false, inflammatory or misleading content which is then legitimised by the proximity to licensed broadcast content.

IMPORTANCE OF ALGORITHMS FOR CONNECTED AUDIO SERVICES

A number of industry commentators and researchers have raised concerns about how content is aggregated and pushed out to audiences automatically by algorithms, in the audio space. For example, the US House Judiciary Committee has opened an investigation into Spotify's Discovery Mode, which offers musicians and labels lower royalties in exchange for higher prominence in the group's algorithms, seeking to better understand the design and proposed implementation of the Discovery Mode tool and the impact that it will have on artists.[REF8]

Smart speakers and voice assistants bring a particular set of challenges. For example, Enders notes that "the interface does not support a browsing environment, so it motivates certain kinds of content choices: known playlists, podcasts and radio stations."[REF9] There are concerns about the level of data shared with content creators, including data and information about how content is discovered by the user.

When a user makes a request to a voice assistant, the platforms' algorithm will interpret it in accordance with its own decisioning models. These models use inbuilt values and weightings that have been programmed into the decisioning model or created by the machine learning algorithms which are 'taught' through constant feedback loops that create personalised results, with consequences such as influencing which content providers are likely to be surfaced.

This is an area that is not well understood and a comprehensive study of smart speaker operations is needed, to better understand the role of voice assistant algorithms, the ways in which decisioning models operate, and how control is exercised over content discovery, including research on the algorithmic prioritisation and de-prioritisation of content.

Ref8   US House Committee on the Judiciary Nadler & Johnson Request Information on Spotify's 'Discovery Mode' Feature

Ref9   Enders Analysis, Radio and online audio: The resilience of broadcast - 19 March 2020

5.12 The move by the larger broadcasters to more bespoke arrangements is not one smaller radio broadcasters can easily follow, and some smaller commercial and community stations have faced issues in getting carriage for their services on online audio platforms. Evidence provided to Radiocentre as part of the Review has highlighted particular risks and concerns, as set out below:

- **Adding new services** – Unlike the BBC and larger commercial radio groups, smaller stations are less able to develop direct arrangements with tech platforms and are dependent on default aggregator services such as TuneIn.

- **Enabling and optimising search functionality** – If stations have no direct relationship with the platforms or a listing on TuneIn they need to use alternative solutions, such as their own skills/apps or other aggregators such as Radioplayer. These options can provide online access to their radio service on DVAs and smart speakers, but currently need to be

enabled and often require additional or specific voice commands, making stations more difficult to access and leading to much lower listening.

- **Erroneous removal of services** – Several Ofcom-licensed radio stations have been removed from TuneIn without warning. Sometimes this has been in error, including a misunderstanding of whether a station is located in the UK and therefore subject to the necessary music licensing arrangements (further details below). There have also been incidents of listeners who had been able to access radio via voice command contacting their radio station to say they could no longer do so.[121]

- **Monetisation** – Even for those radio stations listed successfully on TuneIn this is not always the best option, due to the way that the content is provided and data is monetised by TuneIn.

EXAMPLES OF CHALLENGES OF UK RADIO ENGAGING WITH PLATFORMS

Times Radio experience of launching on voice-enabled devices

Times Radio launched on Monday 29 June 2020 – creating a major new national speech radio choice. The launch – a partnership between The Times, The Sunday Times and Wireless – was the first time that a British newspaper group had launched a news and current affairs radio station.

For launch Times Radio secured availability on Amazon Alexa and Apple Siri-enabled smart speaker devices. Times Radio did not secure availability on Google Assistant-enabled smart speakers for launch, albeit this was subsequently addressed. In addition, on launch day, a subset of Alexa users with early Amazon Echo devices reported accessibility issues, with press coverage noting that these users were redirected to Times Radio Malawi.

Small stations experience with TuneIn

A number of commercial radio stations reported issues in September 2020 with their services being removed from the TuneIn platform in the UK, creating problems with listeners and advertisers, many of whom were using the platform as a default method of listening on smart speakers and other connected devices.

On contacting the broadcaster support team at TuneIn the radio stations in question (including several based in Wales, the Channel Islands and Isle of Man) were informed that 'international' services were no longer available in the UK due to a court ruling on music rights.[REF10] Following some delay and representations by Radiocentre to highlight the geographical location of the stations, as well as the terms of their music rights agreements, the stations were restored to the TuneIn platform.

REF10   [Tunein Loses Appeal Against Judgment In Sony And Warner Copyright Infringement Lawsuit In The UK](#)

Attribution of audio content on smart speaker news aggregation services

Maintaining attribution and credit is vital to allow audiences to recognise the specific value of the services they prefer and consume. This is especially important in ensuring they recognise the benefits they receive from their licence fee.

Research carried out for the BBC indicates that the 'credit' audiences give to the BBC for its content is discounted when consumed on third-party distribution platforms/services by between c.50-70%, depending on the service where they consume the programming and content.[REF11] These results apply to video on demand ('VOD') services such as Netflix and Sky Q where there is often a modest level of visible attribution (e.g. BBC 'Blocks' logos), and thus the issue is likely to be even more acute in the audio and connected devices sphere where attribution between commissioning body and distribution platform is even further removed.

Audiences are also up to six times more likely to make the link between BBC content and paying the licence fee when content is viewed on a BBC platform/service vs. a non-BBC platform/service. There are likely to be similar issues with news content provided by commercial radio.

Ref11   Tapestry Research for the BBC, UK Adults 16+ 2020

5.13 Taken together, the issues raised during the Review point towards a need for new measures that ensure all UK radio services are able to be easily accessed on connected listening platforms or through aggregator services. These changes need to ensure that radio stations have more choice over how services are routed via voice-activated platforms with regulatory requirements that strengthen the ability of radio stations in relation to access, data sharing, findability, discovery and prominence, and prevent self-preferencing by the platforms.

ADAPTING TO THE CHALLENGES OF SMART SPEAKERS AND PLATFORMS

5.14 As more radio and audio listening shifts to connected audio devices, UK radio and audio are developing new relationships with the larger tech platforms. Unlike other digital distribution paths that radio uses such as DAB, television and transmission over the internet, the closed interfaces associated with smart speakers using digital voice assistant technologies are already presenting a challenging environment for the discovery and selection of radio content. While the effects are currently small, as radio listening on connected audio devices grows and as the technology matures, these effects are likely to increase.

5.15 So far, UK radio has been able to develop working relationships with the platforms and aggregators. UK audio producers have also benefited from being able to find new audiences and opportunities via the emergence of podcast aggregators or through building direct relationships with audiences. However, this balance is shifting as platforms such as Spotify and Amazon Music have begun to pursue increased investment in original audio products, alongside enhanced voice-activation capabilities, and aggregation of third-party content from public service, commercial and independent audio creators. Future technological advances will increase the range of voice-activated services available (and should reduce equipment costs further in time) and the platforms' ability to leverage user data in real time (including customer data generated from carriage of UK radio and audio services) in order to develop complementary and competing services. This is likely to further increase the existing value transfer between platform providers and audio creators, and enhance the case for regulatory intervention to restore competitive balance.

5.16 In a report commissioned by Bauer Media Audio, the executive summary of which has been shared with the Review, Frontier Economics assessed how the rising usage of voice assistant platforms, including smart speakers, and information available on platforms' strategies will affect future outcomes for listeners, radio broadcasters and advertisers up to 2025. The report includes data suggesting that voice assistant platforms have, in recent years, become an important distribution channel for radio. At present, Frontier Economics estimates that around 6% of all radio listening is done via smart speakers[122] (reflecting the most recent RAJAR MIDAS data for Q1 2020), while other types of voice assistant platforms (e.g. in-car) also play a role in radio listening, though this proportion will grow as use of voice assistants increases.

5.17 Overall, Frontier Economics estimates that radio may be adding far more value to voice assistant platforms than voice assistant platforms add to radio (both in absolute terms and percentage terms). Going forward, the report concludes that it is likely that there will be a shift in bargaining power in favour of voice assistant platforms vis-à-vis radio broadcasters. This is because Frontier Economics believes:

- By 2025, smart speaker penetration is likely to have matured (at least in the UK) and consumers will be accustomed to using the devices. It is also probable that ecosystems of services and content will be established around smart speakers. At this point, radio will be one of many different services and content that consumers typically use on their smart speakers and the relative importance of radio (compared with other services) will decline.

- It is likely that a higher share of radio listening will be via these devices as the popularity of voice assistant platforms grows.

- The number of households with dedicated radios (i.e. AM/FM/DAB receivers) may decline and radio may become less prominent in-car, which will provide radio broadcasters with fewer alternative options.

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122   Frontier Economics for Bauer Media Audio, The value exchange between voice assistant platforms and radio broadcasters, August 2021

FUTURE RISKS FOR UK RADIO AND AUDIO IN THIS NEW LANDSCAPE

5.18 UK radio and audio publishers have taken steps to secure carriage on smart and voice-activated speakers and have developed skills to ensure a better experience for listeners. A number of providers have also invested in developing direct relationships with the platforms, in order to reduce the dependence on aggregators to distribute services to IP-based devices and to try and secure a better presence on connected devices. However, radio broadcasters and audio publishers have no ability to maintain a level of control over how their content reaches their listeners, due mainly to the way in which relationships between platforms and content audio providers are structured. Nor are they able to fully personalise services on connected audio devices.

5.19 It is clear the large tech platform operators do have the ability if they so choose to develop strategies to use radio services to leverage their market strength. This includes:

Charging for access - Online audio platforms have the capability, though they have not yet used this, to charge radio broadcasters, either for carriage or for sharing of listener or performance data about service usage. Moreover, platforms could also levy to support specific functionality (for example Amazon 'skills') that makes content easier for listeners to find. This could be done as a change to service terms and conditions.

Overlaying advertising - Platforms have the means to recognise small gaps between content to identify advertising content. In theory, platforms could sell advertising slots into these gaps or inject adverts into audio streams as YouTube does for video content. The platforms have not yet introduced paid search advertising on radio streams, but it is possible that platforms might seek to monetise voice search in the future and this could include overlaying advertising across third party audio streams carried on their audio devices, without permission. Whilst it may or may not be the intent of the platforms to derive value from public service or independent commercial media, there is a need to consider a regulatory path or industry framework to ensure that these proceeds benefit the intended audience.

Promoting own services or favoured third parties - Platforms are able to configure the algorithms that control speech activation to favour their own services - an example would be to direct a requester of Classic FM to their own generic classical music stream/playlist - and require a second or subsequent request to connect to the requested station. The issue was recently highlighted by the Digital, Culture, Media and Sport Select Committee in their report on the Economics of Music Streaming.[123] Platforms are also free to develop exclusive deals with particular audio providers and restrict services to other third parties presenting an increasing risk for radio broadcasters wanting to compete on fair terms.

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123   Digital, Culture Media and Sport Select Committee, Report on the Economics of Music Streaming, 15 July 2021)

5.20 Many of the commercial imbalances, and competition concerns, that arise from the gatekeeping position of digital platforms have already been identified by the European Commission in its Preliminary Report setting out the key findings of the EU sector inquiry into consumer Internet of Things.[124]

IMPACT OF NEW APPROACHES TO REGULATING DIGITAL MARKETS

5.21 In November 2020, the government announced details of a new pro-competition regime for digital markets, which would include one or several regulatory code(s) of conduct, setting out the expectations for platforms that have considerable market power - known as strategic market status - over what represents acceptable behaviour when interacting with competitors and users. The EU is pursuing its own approach in its draft digital markets legislation,[125] which will include regulations on gatekeepers to:

- allow third parties to inter-operate with the gatekeeper's own services in certain specific situations;

- allow their business users to access the data that they generate in their use of the gatekeeper's platform;

- provide companies advertising on their platform with the tools and information necessary for advertisers and publishers to carry out their own independent verification of their adverts hosted by the gatekeeper;

- allow their business users to promote their offer and conclude contracts with their customers outside the gatekeeper's platform;

- no longer treat services and products offered by the gatekeeper itself more favourably in ranking than similar services or products offered by third parties on the gatekeeper's platform.

5.22 The government's overall approach to digital market regulation, with the creation of a dedicated Digital Markets Unit (DMU),[126] part of the Competition and Markets Authority (CMA), creates a framework to ensure content providers can operate on third party platforms with pro-competition measures in place where appropriate. The issues identified in this Report suggest that a review by the CMA's DMU may be needed to consider whether competition protections are required in relation to the distribution of digital radio and audio services via online platforms (including any platforms with digital voice assistant capability).

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124   European Union, Internet of Things - Preliminary Report, June 2021
125   The Digital Markets Act: ensuring fair and open digital markets
126   Digital Markets Unit

5.23 However, the new regime will inevitably take time to get to grips with a new and complex area alongside other priorities faced by the new CMA DMU. There is, separately, a compelling public policy need for radio to continue to be able to reach its listeners and therefore a strong case for new legislation as part of a wider update to UK radio licensing rules. This would ensure that platforms are required to carry UK radio services on a free-to-air basis and would outlaw insertions or overlays of advertising by the platform without the radio broadcaster's consent. Similar provisions for TV platforms are in place and have successfully allowed both platforms and channels to prosper over the past 20 years.

CONCLUSIONS

5.24 The accessibility and choice offered by the advance of digital voice assistants, which are increasingly integral to smart speaker devices, and the growing presence of tech platforms in the audio arena, provides a range of new benefits for audiences. However, the Review's conclusion is that this must be placed within an environment which ensures - as far as possible - harmonious coexistence with existing public service and commercial radio and audio media. As part of this, the government needs to consider the introduction of regulation which:

    a. Places radio on the same footing as TV in relation to carriage and prominence rules and which protects radio's content and its ability to reach listeners.

    a. Extends the role of the new Digital Markets Unit regulation framework to digital audio platforms in order to guard against types of 'gatekeeping' behaviour which may disadvantage the place of radio and its ability to reach audiences.

5.25 The changes that are needed are in relation to establishing ground rules and aligning the treatment of audio platforms with that of satellite TV and cable platforms,[127] which are both subject to regulation on the carriage of services. There is also a need for the government's forthcoming pro-competition regime for digital markets to take account of digital audio platforms that have acquired a gatekeeper role.

5.26 Without intervention, the ability of the UK radio industry to thrive and prosper faces significant risks in the face of these trends, especially given the absence of comparable scale and lack of regulatory structure around radio's carriage on these platforms. The position for smaller commercial radio stations is already testing, with evidence provided during the Review that some are struggling to adapt through no fault of their own.

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127   The provisions relate to the operation of conditional access systems and are set out in Sections 45(5), 73(5), 75(2) and 76 of the Communications Act 2003. The requirements on Sky PLC are set out in the Provision of Technical Platform Services Statement - Sept 2006.)

RECOMMENDATIONS

R.24 The government to consider introducing new legislation that makes clear that platform operators must not limit or restrict access to services or charge for carriage of UK audio services. Any such regulations should clarify that platforms that carry UK radio and audio services cannot mandate their own ad-tech solutions and must not insert or overlay sponsorship and advertising around UK radio or audio content without the prior express consent of the provider.

R.25 The government to consider regulatory changes to ensure radio stations and radio and audio content can be easily found and discoverable by users of voice assistant platforms, including smart speakers and in-car infotainment systems. The scope of any such requirements should include:

- R25a: Ensuring that content is accurately and impartially routed to the listener and that content providers (with a stipulation that a request for a licensed radio station should return the correct station for the listener) have discretion over the playback destination unless the user has explicitly stated the service they want to playback from, e.g. *'Play KISS'* gets the user to Bauer's chosen service, but *'Play KISS on Apple Music'* directs the user to Apple Music;

- R25b: Providing for greater transparency by platforms about the algorithms which underpin the discoverability of broadcaster content;

- R25c: As set out in Chapter 4, consideration of new powers to regulate prominence for radio in car dashboards to balance the bargaining power that connected platform providers have, and their ability to use this to negotiate exclusivity for their own platforms in cars and therefore downgrade the prominence of access to broadcast radio services. The SMMT, however, does not believe changes in this area should include regulatory requirements on car manufacturers, as set out in detail in para 4.26.

R.26 The government to consider regulatory changes to allow UK radio and audio full access to data generated by their presence on connected listening platforms (this should deal with issues such as user consent that may be unduly used to justify withholding data on service usage). Any such changes should cover:

- R26a: Requirements on platforms to share all listening, performance and commercial data generated with UK radio and audio in relation to the data generated from their presence on connected listening platforms (whether by skill/action or other arrangement) on regulated terms without any requirement for commercial agreements and without monetising such data in exchange for access. This would be in line with Mission 1 of the government's Data Strategy and help unlock the positive benefits of data sharing for broadcasters and audio publishers, enabling a better understanding of listener behaviours and supporting ongoing investment in content and services;[128]

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128   This means listeners would be prompted to consent to the sharing of non-attributable information about their listening with the BBC and UK radio and audio companies. Where proprietary means exist to capture this information, for example BBC login or Radioplayer sign in, listeners should be prompted about this option.

- R26b: Arrangements for commercial providers to be able to use enhanced data to develop more targeted advertising services;

- R26c: Arrangements for securing listener consent to share data, either at set up or on first use of a UK radio or audio service;

- R26d: Arrangements for access through 'skills/actions' to capabilities that allow for greater personalisation of services (such as alarm services);

- R26e: Arrangements to make it simpler and clearer for new radio and audio services (including smaller commercial and community radio services and independent podcast producers) to join or leave platforms and for any findability or discoverability issues to be quickly resolved by the platforms where such issues arise;

- R26f: Requirements to prevent platforms from using, in competition with the radio and audio services who use them, any data which is generated through the activities of third party radio and audio services or their listeners on these platforms in order to ensure fair competition.

R.27 The government to consider whether Ofcom needs to have new powers to regulate audio attribution and the positioning of content to ensure UK broadcasters and audio news providers are able to set requirements for associations of their content when aggregated by a connected audio platform such as an audio streaming application, voice assistant or audio content directory.

R.28 The government should consider whether regulators (either Ofcom or the CMA) should have powers to safeguard the findability, discoverability and prominence of third party radio stations and other audio content which offers public value on connected audio platforms.

R.29 The radio industry should take steps to make it easier for all UK radio and audio services - in particular smaller commercial and community stations - to thrive on connected platforms, and should explore how its major services could provide effective routes to market for UK radio services that do not have the resources to develop capabilities such as voice skills.

CHAPTER 6 -

FUTURE RADIO DISTRIBUTION AND COVERAGE

CHAPTER 6

FUTURE RADIO DISTRIBUTION AND COVERAGE

Addressing the future challenges of radio operating on multiple platforms

INTRODUCTION

6.01 A critical area for the Review was to look in detail at the state of existing audio transmission systems (principally analogue and digital broadcast networks and mobile telecoms networks), and identify any major structural developments in these systems (including any changes to spectrum allocation) so as to support the radio industry and the long-term transition to a hybrid future over the forecast horizon (i.e. 2035).

6.02 A systematic review of each of the ways in which radio is broadcast was undertaken to understand the condition of platforms; and the other implications of maintaining each and all of the platforms. This analysis and the subsequent recommendations are intended to identify what coordinated decisions are needed in the medium to long term to meet the needs of both listeners and industry stakeholders.

6.03 The key questions were:

- What is the longevity of existing analogue transmission networks (AM and FM networks) and what capital investment would be needed to keep them running reliably;

- What are the coverage deficiencies in DAB networks, and what would it take to plug these gaps;

- What is the status of spectrum availability/allocation, and how can existing licensed spectrum be better used to widen any current distribution bottlenecks;

- What are the developments in mobile network coverage, and what will these mean for coverage and user experience versus broadcast transmission in the future;

- What are the environmental considerations of maintaining multiple distribution platforms, and what are the alternative uses of analogue spectrum currently used for radio.

CONTEXT

6.04 DAB digital radio was launched by the BBC in 1995 and commercial radio in 1999. Initial take-up was slow, but the last available RAJAR data (Q1 2020) showed DAB accounted for two thirds of digital radio listening and 40.4% of all listening.

- For listeners, the availability of radio and audio content on more platforms offers new services and richer content. The additional range and variety of content and its availability on a choice of platforms is a benefit for consumers.

- For the providers of radio and audio content the position is more complicated. For commercial broadcasters and audio content providers, the distribution of content on multiple platforms adds to costs and reduces profitability. For the BBC the value for money issues at a time when licence fee revenue is declining are comparable.

FM RADIO

6.05 FM is used for five national stations (Classic FM and four of the BBC's national networks) and most of the UK's Nations, local and community radio stations. Since 2010, the percentage of listening to stations on analogue platforms (FM, MW and Long Wave) has fallen from 73.5% to 41.4%.[129] Projections from Mediatique suggest that on current trends, including allowing for the emergence of smart speakers, FM will decline to around 12-14% by 2030.[130] As set out in Chapter 2 (para 2.16 and recommendation R1), FM will continue to be an important platform for listeners and be needed until at least 2030.

FM - LISTENING HOURS (000s)
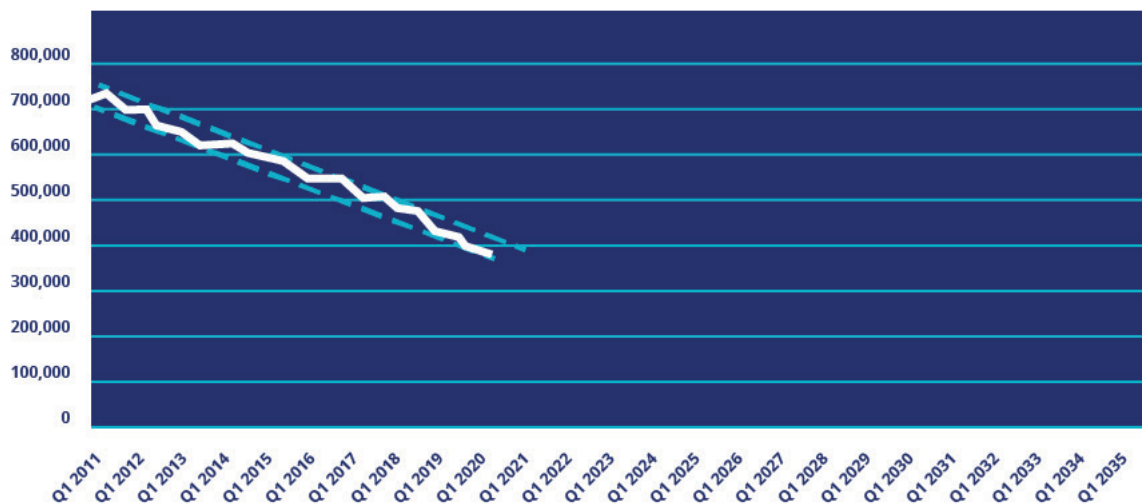
Source: Distribution and Coverage Group estimates for the Review based on RAJAR data

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129   RAJAR Q1 2010 and Q1 2020
130   Mediatique, Future audio consumption in the UK, December 2020, p10

6.06 The BBC and commercial operators of FM stations believe listening levels until 2030 will continue to justify the costs of transmission. In addition, existing FM coverage exceeds current coverage on DAB for BBC and commercial local services and there is a risk some listeners – particularly those in Scotland, Wales and Northern Ireland – could lose access to favourite stations if FM was to be switched off before alternative digital platforms have better coverage and are accepted by listeners as a replacement for FM.

6.07 Two of the drivers for television switchover do not apply to the long-term transition of radio to digital. Firstly, VHF spectrum[131] used by FM services has limited alternative uses (for example, it is not attractive for mobile phone services) and it therefore lacks the financial value that analogue television switchover achieved. Secondly, to reach the widest possible coverage for digital television some analogue television spectrum needed to be reused. DAB networks could be expanded to higher levels without requiring reuse of any of the spectrum currently used for FM radio.

6.08 The recommendation that FM will continue to be required until at least 2030 is based on current projections of platform share and investment cost requirements and balanced against the overall costs of maintaining simulcast services. Whilst there is a degree of uncertainty with forward forecasts, 2030 is a realistic time frame providing a framework to guide decisions by industry stakeholders whilst giving reassurance for listeners that a broad range of FM stations will continue to be available. For this reason, it is recommended that Ofcom should, when carrying out its statutory requirements, continue to plan on the basis that spectrum for FM radio services will be needed until at least 2030.

6.09 A high-level analysis of publicly available information suggests that the absolute maximum potential savings to commercial radio of switching off analogue transmissions would be £25-30m per annum. In reality, any genuine saving will be a lot lower after the reallocation of some shared network costs and the costs of audience migration (including but not limited to filling material DAB deficiencies). Annual commercial radio revenue in 2019 was £703m. Therefore, even a small (2-3%) impact of a switchover on commercial revenues, as seen in Norway when it switched off FM services in 2018, could result in commercial radio losing more revenue than it saves in transmission costs by turning off analogue.

AM RADIO

6.10 Medium wave (AM) is used by three national radio stations (Absolute Radio, BBC Radio 5 Live and talkSPORT), and a range of local BBC, local commercial, and community stations throughout Scotland, Wales, Northern Ireland and England.[132] While precise figures are not available for services where RAJAR aggregates FM and AM listening, it is currently estimated that 6.5 million adults listen to the radio via AM each week, and AM listening accounts for around 3% of all radio listening in the UK (6% of all analogue radio listening). The three national AM networks account for approximately 70% of AM listening.[133]

131   FM uses band II VHF spectrum; DAB uses band III VHF spectrum.
132   The BBC also runs long-wave services for BBC Radio 4. The Review has not considered BBC long-wave services as part of the Review and decisions on the future of services is a matter for the BBC to determine.
133   AM listening estimates are based on Distribution and Coverage Group analysis of RAJAR data (which does not measure AM/FM separately).

6.11 The graph below illustrates the development of AM listening in the UK over the past ten years. Over the past seven years or so, the decline in AM listening has followed a relatively consistent, linear trajectory. If future AM listening was to follow a similar path, AM listening is likely to fall to commercially unsustainable levels in around 2025. Whilst the BBC needs to consider AM's contribution to its universality obligations in areas unserved by FM or DAB, it also has a public duty under its Charter to deliver value for money that should lead it to similar viability conclusions as its commercial peers.

MEDIUM WAVE - LISTENING HOURS (000s)
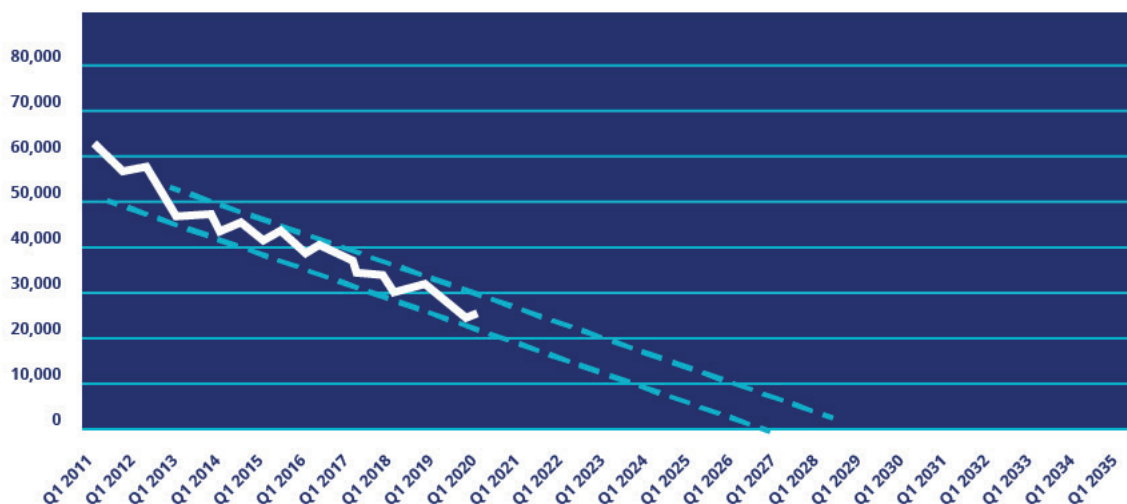
Source: Distribution and Coverage Group estimates for the Review based on RAJAR data

6.12 In recent years, both the BBC and commercial radio have already switched off a number of AM transmitters in areas where AM listening was particularly low or significant investment was required to continue to broadcast AM, making continued transmission uneconomic. Given the steady decline in AM listening generally, further retirement of AM services and decommissioning of AM sites is likely to continue irrespective of any regulatory intervention. In light of this, there is no need for regulatory intervention to set a single mandated AM switch-off date.

6.13 Arqiva has undertaken some preliminary work to assess the capital investment costs needed to keep AM networks operating over the final stage of their operating life cycle. This information has been provided directly to DCMS as it is commercially sensitive and cannot be anonymised. However, even disregarding the technical life of equipment in different networks, the closure of commercial AM networks and BBC AM networks will likely not fully align, either due to different levels of listening, or due to the different measures of viability. Staggered AM network closure may not in itself cause any concerns but the coordination of site closures where it is possible to do so will create technical and operational efficiencies as well as facilitating communication to listeners.

6.14 Such coordination will also help Ofcom consider the closure of AM transmitters in the round, rather than on a piecemeal basis. There may be a need for new legislation to clarify any continuing rights and obligations of the two national commercial radio services which broadcast on AM (Absolute Radio and talkSPORT) in the event they choose to surrender their INR[134] licences, where those rights and obligations are included in the INR licences.

DAB DIGITAL RADIO

EXISTING DAB COVERAGE

6.15 Since 2019, DAB has been the biggest platform for radio listening in the UK in terms of stations carried and audience share. As part of the Review, an assessment of DAB coverage both nationally and locally was carried out and compared with FM services. Different DAB multiplexes have been rolled out to different levels of coverage of UK roads and population, and the extent of coverage for the different Nations of the UK also varies.

6.16 There was significant progress in expanding coverage between 2012 and 2018 due to: the BBC Phase 4 programme which expanded BBC UK-wide coverage with the addition of 162 transmitter sites; the addition of 27 transmitters for the first national multiplex (Digital One) including its expansion to Northern Ireland; the launch of the second national commercial multiplex (Sound Digital) in 2016; and the expansion of the local DAB tier with costs split equally between commercial radio and the BBC and with capital funding from DCMS. The current coverage of DAB services is set out in table below.

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134   INR (or Independent National Radio) refers to the three national commercial radio stations broadcasting on analogue radio in the United Kingdom. The two stations broadcasting on AM - TalkSPORT and Absolute Radio - were allocated frequencies previously used by the BBC and were licensed under the Broadcasting Act 1990.

		BBC UK-wide	Commercial		
			Digital One	Sound Digital	Local DAB
UK	Homes	97.4%	91.7%	82.6%	91.0%
	Major Roads	87.4%	80.2%	72.6%	75.2%
England	Homes	98.4%	94.8%	86.7%	92.3%
	Major Roads	94.5%	93.9%	89.8%	85.0%
Scotland	Homes	95.3%	81.7%	69.0%	85.4%
	Major Roads	69.1%	45.5%	33.6%	45.6%
Wales	Homes	92.2%	67.5%	56.9%	82.6%
	Major Roads	78.1%	53.3%	37.7%	60.9%
Northern Ireland	Homes	87.3%	85.4%	56.8%	87.5%
	Major Roads	86.9%	86.9%	55.0%	87.8%

Source: BBC, Arqiva, Ofcom Media Nations 2019

6.17 Both population and road coverage (assessed by road miles rather than road journeys) are markedly lower in Scotland, Wales and Northern Ireland than in England, and this has resulted in a perception that listeners in the Nations are not being treated fairly. This was expressed very forcefully in the roundtable sessions for stakeholders in Wales and Scotland carried out as part of the Review's outreach and consultation. There are also issues in parts of rural England that have limited access to DAB services.

6.18 Access to digital services in areas not served by DAB multiplexes is dependent on digital TV (likely in such areas to be either digital terrestrial or digital satellite, which is not environmentally efficient and only relevant to in-home listening), broadband (for in-home listening) or mobile (usable 3G/4G/5G coverage). This is, of course, more of an issue for services that are not simulcast in FM, particularly as the disparity between Nations' FM coverage is much less marked than the DAB disparity.

6.19 Ofcom has allocated spectrum to allow the licensing of small-scale DAB multiplexes in many parts of the UK. The aim of these is to provide a low-cost digital route to market for small commercial and community stations. It is expected that some of these new multiplexes will provide additional in-fill coverage adding to local DAB coverage helping to improve the total local figure.

COMPARISON BETWEEN EXISTING DAB AND FM COVERAGE

6.20

For services simulcast on FM, as the table below shows, coverage of FM exceeds DAB coverage.[135] However, despite decades of investment, FM still does not reach all UK homes nor has it achieved full road coverage. The BBC has historically balanced the ambition to achieve universal availability of its services with value for money considerations and for this reason has not extended FM services since the late 2000s. Commercial networks balance licence obligations with the need to generate revenues and profit. BBC and commercial national and local DAB coverage compares well to FM core coverage – however, FM signals still support reception with variable coverage (e.g. as a mono service), hence the difference between FM in the table below and DAB.

COMPARISON OF FM AND DAB COVERAGE

Existing FM coverage	BBC national (BBC Radios 1 to 4)	Commercial national (Classic FM)	Aggregate of local coverage
UK Households	94.9%	90.9%	92.6%
Households (variable)	99.1%	97.4%	97.9%
UK Roads	93.1%	86.8%	91.5%
Roads (variable)	95.8%	90.3%	95.5%
Existing DAB UK wide	**BBC national DAB**	**D1**	**Local DAB**
Households	97.4%	91.7%	91.0%
UK Roads	87.4%	80.2%	75.2%

Source: Ofcom, The Communications Market: Digital Radio Report November 2016

Note: Variable indicates that reception may be less than perfect quality; some artefacts will be present on the audio signal or there may be occasional short drop-outs.

Digital television is excluded as only selected brands from BBC local radio and the biggest national commercial radio groups are broadcast on digital television alongside a handful of smaller stations.

DIGITAL RADIO MONDIALE - DRM

6.21

Digital Radio Mondiale (DRM) is an alternative digital radio standard which is used by the BBC World Service and in a number of other countries. There are very few (if any) digital radios in the UK that are capable of receiving DRM services. Neither the BBC nor commercial radio have any plans to consider DRM broadcasting in the immediate future.

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135   Comparisons between coverage figures for different platforms need to be treated with caution. Different technologies use different computer models and make various assumptions about a range of parameters (e.g. the signal strength required for good audio reception, interference and the extent to which the signal may be reduced by buildings in urban areas). Ofcom caution that using sets of data produced by the regulator for different technologies as if they are directly comparable is likely to lead to unreliable conclusions.

IP NETWORKS AND THE CARRIAGE OF BROADCAST RADIO SERVICES

6.22 The UK's IP networks continue to improve both in terms of coverage and capacity and the roll out of 5G services across the UK continues apace. According to Ofcom, two thirds of the UK landmass has good 4G coverage from all four operators, and this coverage includes 98% of the premises in the UK.[136] Although improving, road coverage is currently behind household coverage with only 59% of all UK roads covered by all four mobile phone networks. It should be noted that this is based on the threshold used by Ofcom in their Connected Nations reporting, but road coverage is significantly higher (89%) when measured using the threshold recommended in Plum Consulting's report[137] for the Review as suitable for radio and audio streaming. Mobile operators have now started extending coverage to new areas through the Shared Rural Network scheme, agreed with the government in 2020. As a result, nationwide coverage is set to increase in the coming years.

6.23 As the tables in Ofcom's Connected Nations Report indicate, in-home broadband coverage is materially better, with 99.4% of UK homes able to get broadband connections with speeds adequate for low bit-rate radio listening.[138] For the remaining 0.6%, the Universal Service Obligation provides a legal right to request a decent broadband connection. However, broadband take-up by household remains at 82%[139] so from a practical point there are access issues. In addition, the related issues of devices, affordability for consumers and gatekeeper issues (i.e. the potential disintermediation of the relationship between broadcasters and listeners) - which were covered in Chapter 5 - are also present.

6.24 Mobile networks have a significant dual role for the UK radio broadcast industry. They enable out-of-home access to the increasing range of personalised services and podcasts that are a huge area of growth for audiences and for UK broadcasters (as well as UK and international audio services of all sizes). They can also enable access to digital radio services for in-car listeners without access to DAB.

6.25 Plum Consulting's report for the Review confirmed the initial assumption that mobile reception will be important for in-car, supporting a range of communication needs as well as supporting the streaming of audio services onto in-car audio devices. Plum's analysis suggests 4G coverage today is already better than DAB and already at a level adequate for delivering streamed audio listening.[140] However, real-world testing is recommended to test the conclusions of Plum and build confidence in them particularly if radio broadcasters want to be clearer in messaging about IP as the means of reaching listeners not served by DAB. A testing methodology would need to be agreed between industry stakeholders and Ofcom to ensure that the results, which may be contentious, will be broadly accepted. Understanding the suitability of mobile coverage and assessing further coverage and capacity improvements in the medium term is also important in determining whether future DAB expansion should be modest and targeted.

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136   Ofcom, Connected Nations Update Spring 2021
137   Plum Consulting, Wireless Delivery of Audio Services, January 2021
138   Ofcom, Connected Nations, 2020
139   Ofcom, Connected Nations, 2021
140   For example, the 59% coverage figure for road coverage (see para 6.22) jumps to 89% at the measurement threshold preferred by Plum.

6.26   It will become even more important when FM broadcasting ceases, which is expected at some point after 2030, and listeners outside of DAB coverage want to continue accessing radio services and the BBC may be dependent on mobile coverage, to some extent, for delivering its universality obligations.

6.27   With the roll out of the Shared Rural Network coverage plan, mobile network coverage is predicted to get better over the next five to ten years, particularly in levelling up coverage from the four mobile phone network operators. From a radio and audio industry perspective, coverage is only useful if it provides data rates sufficient for radio/audio streaming. Therefore, threshold parameters for planning and reporting of network coverage should incorporate a category of data level appropriate for streaming audio services.

6.28   In recent years, there has been discussion about 5G for radio. Plum's report highlights that the relatively low data rates needed for audio mean that with the right network architecture 4G can already meet the needs of radio listeners. Potential benefits of broadcast mode such as eMBMS[141] have also had advocates. Plum's view, however, is that network operators are unlikely to implement this type of functionality in the UK and unicast offers some benefits for commercial broadcasters which might be lost with broadcast mode. Meanwhile, given the higher data speeds which 5G provides, for radio at least a broadcast mode or network slicing is not necessary for radio services.

6.29   However, while radio streams use relatively low data rates, the level of traffic for other uses (e.g. video or home working hot spots) can still cause network congestion and lead to poor listening experience particularly in urban areas. Data can be prioritised over mobile networks according to the latency requirements of a given service. VoIP, for example, relies on prioritisation in order to ensure phone calls can be made over IP networks with good quality and low delay. Prioritisation could similarly be applied to broadcast radio services in order to ensure that synchronous alternative user requirements do not lead to gaps in the audio stream being consumed.

6.30   Prioritising radio traffic on mobile networks would be beneficial and would work in conjunction with other measures in the Review to ensure prominence for the public value of radio and to ensure in-car radio listeners get as seamless an experience as possible. These include measures recommended by the Review to promote the radio and car industries working collaboratively to ensure the best in-car audio experience for listeners, which the Review believes could be achieved at relatively low cost for mobile operators working in partnership with UK radio. This may require further technical research on handover between 4G/5G mobile services and DAB/DAB+ in cars (and vice versa).

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141   Multimedia Broadcast Multicast Services (MBMS) is an interface specification for mobile networks, which is designed to provide efficient delivery of broadcast and multicast services. The specification is referred to as Evolved Multimedia Broadcast Multicast Services (eMBMS) when transmissions are delivered through an 4G or LTE (Long Term Evolution) network.

PLANNING THE FUTURE OF ANALOGUE SERVICES

6.31 A mandated analogue radio switchover (i.e. a government-led process to switch off analogue radio on AM and FM with a defined process and timetable) has been much debated in previous reviews of digital radio. Radio manufacturers, the car industry and some broadcasters have previously advocated setting a date and developing a switchover plan. They have argued the high level of simulcast costs of analogue transmission could be better channelled into programming; manufacturers and retailers would benefit from increased demand for digital radios; and spectrum currently used for FM radio could be released for other uses. Consumer groups have tended to be more cautious, raising concerns about listeners losing access to favourite stations; analogue radios being made obsolete; and the need for improved coverage of DAB so that it matches FM coverage. In previous reviews some broadcasters opposed a mandated switchover on the grounds that not all stations had the ability to access the DAB platforms.

6.32 As set out in Chapter 2, the migration of consumers to digital platforms is steady and sustained, but whilst DAB is now the main broadcast platform, FM listening remains resilient within a set of platforms that now also extends to IP. FM will continue to be an important platform for a wide range of radio services until 2030 at the earliest. Whilst the needs of listeners are important, other considerations also suggest that setting a date for a switchover at this point in time would be premature. These include the fact that conventional radios, unlike mobile phones and computers, often enjoy a long life of heavy use and an early switchover could result in millions of radios being rendered useless. In addition, there are no immediate alternative uses for FM spectrum and it lacks the financial value that made television switchover more attractive.

6.33 A minority of stakeholders argued that a government-led plan for an FM switchover before 2030 would help industry and consumers plan and bring forward the delivery of financial savings and environmental benefits (mainly from a reduction in energy used for radio transmission). However, though these arguments are not without merit, the case for a mandated switchover by the mid-2020s is not strong and risks losing audiences. In contrast, a transition shaped by the decisions of individual broadcasters over a longer timescale is more likely to serve the interests of listeners better. However, given projections of analogue radio listening declining to 12-14% by 2030, it does make sense for industry, with government and Ofcom, to begin long-term scenario planning regarding future transmission platforms.

6.34 Clearly the issue is dynamic and needs to take account of future changes in listening and in listener behaviour. One of the recommendations is for a further review to be completed by 2026. This will give government and industry a further opportunity to consider the best process for any migration from switchover and for broadcasters and other stakeholders to consider whether coordinated FM closure would be appropriate at some point after 2030. At that point, while the rate of change in the radio and audio sector may not have slowed, some of the current uncertainties may have been resolved.

6.35 Given the consensus against mandating a timetable for switchover at this point in time, the Review needed to consider four specific issues which arose as a result:

- What level of investment is needed to maintain FM services into the 2030s;

- What level of DAB expansion is appropriate, given the known deficiencies in coverage;

- What role might DAB+[142] play in terms of strengthening the DAB platform and opening up more opportunities for new stations to take carriage on national and local DAB multiplexes;

- What is the overall energy use of UK radio broadcasting covering both networks and receivers and what are the implications of the government's new targets for a 78% cut in emissions by 2035 for radio broadcasting.

6.36 This section focuses on analogue and DAB radio and the needs of both until the early 2030s. There is a separate requirement for broadcasters, supported by regulation if required, to work with IP platforms (including the mobile network operators) to ensure that listening via IP is a good experience for consumers (in terms of reception quality and consistency) and enable suitable access to IP platforms for consumers and content providers.

MAINTAINING FM SERVICES THROUGH TO AT LEAST 2030

6.37 An investigation carried out by Arqiva has identified that some FM infrastructure is reaching the end of its life. Over the past ten years engineering investment decisions to replace older analogue equipment have generally been deferred due to discussions of a possible mandated FM switchover in previous reviews, in particular the Digital Radio Working Group review in 2008 which set an aspiration for a radio switchover by 2020.[143] According to Arqiva's analysis, the latest date for significant investment to keep FM networks on air is already five years overdue and 'make do and mend' is no longer an option if FM services are to continue.

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142   In the UK digital radio broadcasting mainly uses the Digital Audio Broadcasting (DAB) technical standard. Some services on certain radio multiplexes use the newer DAB+ standard. DAB+ uses more modern audio encoding than DAB and permits more efficient use to be made of multiplex capacity. This means that, for an equivalent sound quality, a DAB+ multiplex can carry more services than a DAB only multiplex.

143   Digital Radio Working Group review report 2008

6.38 Arqiva was also asked to assess the investment needed to extend the life of the FM infrastructure. Arqiva's report[144] estimates that circa £47 million of capital investment is needed to keep FM going at current levels of reliability and if the requirement was to keep FM until 2035 the total would rise to £54 million. The level of annual costs would be subject to negotiation and would depend on factors that vary between customers and networks, but the Review's assessment of Arqiva's analysis is that the marginal/additional costs flowing from such additional capital investment to either 2030 or 2035 could be circa £5 million per year. This excludes the annual running costs of electricity, site rental, maintenance, etc.

EXPANDING DAB NETWORK COVERAGE

6.39 Mediatique's analysis for the Review has informed a consensus among content providers that IP and DAB will continue, over time and absent intervention, to become the two dominant platforms for radio and audio, with AM and FM declining in importance. The relative importance of IP and DAB are hard to predict. Given this uncertainty, plans for additional investment in DAB need to be developed carefully and potentially refocussed. Nonetheless there are merits in exploring modest enhancements to DAB networks, and as part of the Review, DCMS asked Ofcom to contribute technical advice relating to spectrum use including an assessment of broadcast radio network coverage. Ofcom formed a Broadcast Radio Coverage Group (BRCG)[145] to support this assessment.

OFCOM TECHNICAL ADVICE ON BROADCAST RADIO COVERAGE

6.40 The purpose of the BRCG's work was to assess the current coverage of analogue and DAB UK radio networks and to allow for consideration of options to further develop DAB coverage. The BRCG compared the coverage currently being provided by national and local radio services, and both indoor and road coverage were considered. The BRCG's analysis did not consider economic viability or value for money, nor did it analyse the second national commercial multiplex, as Sound Digital does not carry any stations simulcast nationally on FM or AM.

6.41 The BRCG study[146] identified areas across the UK where Ofcom modelling predicts that FM radio services are receivable and that are not served by DAB. The identified differences are based on theoretical analysis carried out by Ofcom comparing the maximum coverage likely to be achieved by FM radio services and comparing that with predicted DAB coverage. Deficiencies are summarised in the table below, being

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144   Re-engineering Investment Analogue Radio September 2020
145   In order to manage the coverage analysis inputs to the Review, Ofcom formed the 'Broadcast Radio Coverage Group' (BRCG) which was responsible for assisting with and reviewing the technical work. The membership of the BRCG included spectrum planners from Ofcom, the BBC and Arqiva. Interested parties from the Review's Distribution and Coverage Group were invited to observe and provide input as required.
146   Ofcom Contributions to DCMS Digital Radio and Audio Review

identified by defining thresholds for the numbers of unserved adult population and road lengths. While some DAB networks broadly match analogue coverage, localised deficiencies, caused by the different frequency bands and network topologies, have led to the deficiencies identified but do not take account of areas where DAB serves areas unserved by FM.

FM AND DAB DIGITAL RADIO, OFCOM ANALYSIS OF DEFICIENCIES

	Digital Multiplex		
	BBC National	**Digital One**	**Local**
FM service used for comparison	Radio 2	Classic FM	Local BBC & Commercial FM service
Threshold for deficiencies			
Adult population	1,000	5,000	5,000 and 1% licence area
Roads (km)	5	5	5 and 1% licence area
Number of deficiencies identified			
England	76	138	348
Wales	42	43	71
Northern Ireland	22	10	11
Scotland	20	9	94
TOTAL	**160**	**200**	**524**

Source: Ofcom, Broadcast Radio Coverage Group

6.42 Where significant DAB coverage deficiencies were found, Ofcom sought to identify potential technical solutions to 'fill-in' these areas of coverage shortfall, which were then ranked according to criteria of benefit and feasibility. To enable the technical solutions to be approximately costed, Arqiva grouped them into five different site categories, and provided a high-level indicative cost for operating each site category.[147]

6.43 Using the approach set out in the BRCG Report,[148] the Review's estimated cost to fill all deficiencies identified by Ofcom across the three DAB networks set out in the table above (FM and DAB digital radio, Ofcom analysis of deficiencies) would be £12m p/a, while filling highest rated deficiencies only would cost £4m p/a, concentrated on commercial networks. It is unlikely, given the relatively modest gains, that commercial multiplex operators would be able to justify this additional investment at this point in time, or that it would meet BBC value for money criteria.

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147   Costs of Additional DAB Sites, Arqiva, October 2020
148   Ofcom Contributions to DCMS Digital Radio and Audio Review

6.44

In summary therefore, the research has confirmed that there remain a number of coverage deficiencies across all networks that are very unlikely to meet the commercial/value for money criteria of broadcasters without further DCMS support.[149] To inform any programme, a further level of prioritisation will be necessary, as well as determining the level of investment likely to be made available. Approach to prioritising deficiencies in DAB coverage

APPROACH TO PRIORITISING DEFICIENCIES IN DAB COVERAGE

6.45

Elsewhere, this report anticipates significant improvements to mobile coverage and usability. At home, consumers already have alternative options for listening to the broad range of stations in the home e.g. via digital television, smart speakers or with mobile phones using in-home WiFi. This led the Review to conclude that for future prioritisation:

a. The focus for DAB should be on the car, where the alternatives are more limited and most consumers today need to link their mobile phone to the car audio system;

b. Replicating FM coverage is less of a concern than ensuring more reliable access for users of DAB networks.

6.46

The BRCG's work therefore, whilst a useful guide, needs to be adapted against these priorities. Additional planning consideration should be given to moving from a road mileage to a journey volume assessment and audiences in order to help this prioritisation:

a. Whether short gaps in road coverage in an otherwise well-covered area are more of a priority than a much longer length of road extending beyond the edge of coverage;

b. Whether short duration deficiencies on motorways with fast moving traffic should be prioritised over those in a congested urban centre with traffic lights, junctions, etc.

There is a risk that this approach may lead to a continuation in key coverage disparities between the UK Nations. Some of these are striking, and therefore an additional planning consideration should look at whether there are different cost-effective ways to reduce some of those deficiencies including utilising small-scale DAB areas.

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149   For previous local DAB expansion, DCMS set a fixed amount for capital funding, with local multiplex operators and the BBC agreeing to jointly fund annual operating costs, and with the funding release delegated to a joint group led by Ofcom approving each transmitter added.

THE FUTURE ROLE OF DAB+

SPECTRUM AVAILABILITY, ALLOCATION AND USAGE FOR DAB SERVICES

6.47 Spectrum used by the DAB platforms is now mostly allocated. Recent investment by broadcasters to launch new digital-only stations (particularly at a national commercial level), plus policy interventions to enhance both DAB transmission network coverage and the ubiquity of DAB receivers (particularly in-car), have meant that the radio industry now finds itself in the position where all the national DAB multiplexes, and the majority of local multiplexes serving major metropolitan markets, are 'full'.[150]

6.48 In work done for DCMS, Ofcom also found that 40% of local multiplexes are either full or have very limited capacity to carry additional services. Ofcom noted that almost all of these multiplexes carry only services that operate using the longstanding DAB standard, rather than using the more efficient DAB+, and that the shortage of capacity could be eased by adoption of the DAB+ standard by a greater number of programme services. Ofcom also stated that additional spectrum could potentially be made available in a limited number of areas, provided it is not needed for small-scale DAB, although this would not provide a remedy in two-thirds of the areas where multiplex capacity is in short supply. In the absence of new spectrum blocks[151] to launch either a fourth national multiplex and/or second multiplexes in large metropolitan markets,[152] one viable way to unblock the supply bottleneck is a migration to DAB+.

6.49 Analysis undertaken shows that moving all the existing DAB services to DAB+ (making some assumptions as to DAB to DAB+ bitrate conversion) could potentially free up sufficient space for 24 additional national radio stations (or up to 37 if innovation results in technical limits being pushed past the current performance envelope).[153] At a local multiplex level, moving all existing DAB services to DAB+ would mean that no local multiplex would be more than 50% full.[154] Such a change would clearly therefore represent a significant increase in the supply of broadcast distribution with material implications for consumer choice and enhanced competition. The capacity utilisation position of the three national DAB multiplexes and a summary of the local multiplex layer is set out in the table below.

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150 Analysis of the UK DAB multiplexes was undertaken as of July 2020. 'Full' is defined as the inability to accommodate the addition of any new service in DAB-mode at 64kbps or above.
151 A key question still to be answered is the extent to which VHF spectrum vacated as a result of DSO could be re-used.
152 London, Glasgow, Edinburgh and Liverpool are the only markets in the UK with more than one local DAB mux.
153 Technical experts within Arqiva advise that the maximum number of services that existing technology can handle on any given mux (due to limitations on the repetition of the Fast Information Channel (FIC)) is 27.
154 Except for the Muxco NE Wales and W Cheshire multiplex.

ANALYSIS OF NATIONAL AND LOCAL DAB MULTIPLEXES (AS AT JULY 2020)

	Current # of Services (incl. data & part time)	Current Mux Fill Rate %	Fill Rate if all DAB+ %	Potential # of New Services (@40kbps)	Potential # of New Services (max)
National - BBC	13	98%	45% [$]	16	13
National 1 (Digital One)	22	98%	67%	9	5
National 2 (Sound Digital)	21	97%	57%	12	6
Local (average)	10	81%	33%	20	16

Note: "New Service" is defined as an additional, incremental radio station that could be added to a multiplex
$ - this fill rate is not reflective of any formal BBC position on appropriate DAB+ bitrates.

6.50 Whilst the BBC is likely to broadcast in DAB+ at higher bit rates than indicated in 6.49, a significant capacity gain would arise on the BBC's national multiplex from a full conversion of its services to DAB+. The BBC has a number of public service obligations that it and Ofcom, in its capacity as regulator of the BBC, would need to carefully consider before implementing any such conversion.

6.51 With any transition in technology there can be some degree of resistance. However, with a coordinated approach, which clearly articulates the benefits of change, conversion barriers can usually be overcome.[155] Without any major policy interventions, the UK radio industry has been able to develop a DAB+ offering principally on the back of investment by commercial broadcasters and new station launches. As at the date of this analysis, around 55 DAB+ services were being broadcast on national or local multiplexes. However, whilst this represents more than half of all national commercial DAB services, it represents less than 10% of the total number of services if BBC stations and services on local multiplexes are also included.[156] It will likely, therefore, take some time before a full transition to DAB+ would take place in the absence of regulatory intervention.

6.52 A primary issue for broadcasters in moving to DAB+ is that not all DAB radio sets are DAB+ capable. As a consequence, the potential addressable audience for a DAB+ station is less, though precisely how much less is not clear given the lack of available data. While the consensus is that DAB+ set penetration is higher in-car than in-home, no firm data is available on this, as previously highlighted in para 3.13, and one of the Review's recommendations is to rectify this informational deficit. So while launching a new service in DAB+ does not pose any issues in terms of listener disenfranchisement, flipping an existing service can present more challenges. This is not to say that services have not made the transition from DAB to DAB+, as they have (including services such as Capital XTRA, Chris Country, Gold, Heart 80s, Radio X, talkRADIO and talkSPORT 2), but in some cases the changes have been motivated by the lack of available capacity for standard DAB services.

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155   Large-scale technological transitions -- such as TV switchover - can have a disproportionate impact on vulnerable groups, and so intervention may be required to correct for such.
156   There are 574 stations available on DAB/DAB+ across the UK, Ofcom Media Nations 2021, p88.

6.53 Isolating the audience impact of these changes is difficult to assess, and there is no compelling, consistent evidence of either an overly negative impact or any positive audience bounce (for instance, due to moving to stereo sound quality from mono). However, taking just anecdotal evidence of audience feedback via social media of some of these services changing over to DAB+ would suggest that making such a move is going to cause some level of listener dissatisfaction (mainly caused by consumers not being fully aware of what DAB+ is), particularly for stations which have been broadcasting in DAB for some time. Clearly, the bigger the station, the bigger these sorts of negative effects might be (in absolute terms) if not carefully managed and communicated to listeners. And consequently, for commercial broadcasters at least, the more damaging they could be, potentially, in terms of revenue; and for the BBC in terms of reach. Given the risk of disenfranchisement as a consequence of making incompatible receivers redundant, achieving a significant shift of household DAB+ use will be critical before moving to any mandated transition date; though clearly Ofcom would need to undertake its own assessment and analysis ahead of considering any intervention.

6.54 A transition to DAB+ will also have implications for multiplex operators. One immediate issue is the cost involved in upgrading multiplexes (mainly in the form of software licences) so that they can handle DAB+ services. However, given the updating of transmitter technology currently being undertaken by Arqiva on its DAB infrastructure to allow for DAB+ services, by the end of 2022 this cost issue will no longer be relevant, as the new infrastructure being installed by Arqiva will be DAB+ enabled 'out of the box.'

6.55 Another potential impact on multiplex operators is that a shift to DAB+, in the absence of any change in capacity unit pricing, might lead to downward pressure on multiplex revenues in the absence of new services coming on board to make up for the lower volume of DAB+ capacity needed by the existing number of radio services on any given multiplex. Further work is needed to understand the implications of this (both at an individual mux area level and at a consolidated mux operator level) and service providers and mux operators (including small-scale multiplex operators) would need the chance to make appropriate representations (in confidence) to Ofcom setting out the impact on their businesses so that appropriate remedies could be found to mitigate any harm.

6.56 There are a different set of considerations around a transition to DAB+ for the BBC. In particular, it has a number of public service obligations that it would need to carefully consider, and a need to demonstrate public service value is being maximised in deciding whether to convert any existing services to DAB+ and determining how best to allocate the capacity created on its DAB multiplex. The BBC also has to carefully balance (a) the specific obligation to secure efficient use of spectrum allocated to it with (b) the general obligation to make its services widely available which would make it more difficult to exit DAB in the near term (whilst a significant proportion of DAB sets in homes do not support DAB+). The BBC also has specific obligations under the Equality Act that would need consideration.

6.57 There are therefore a range of considerations; however, given the potential benefits that a move to DAB+ might unlock, more work is needed to more fully assess the practical issues involved. The Review therefore recommends that a market research study is undertaken to assess the current status of DAB+ devices. Ofcom would be ideally placed to undertake such a study given its excellent capabilities in this area. This piece of research could then also form part of a wider call for evidence, where all the listener enfranchisement, multiplex viability, licensing, market impact, public interest and regulatory implications

(both for the BBC and commercial radio) of a move to DAB+ could be assessed and considered; in turn leading to some policy proposals which could then be put back to stakeholders for consultation.

ENERGY CONSUMPTION AND THE ENVIRONMENT

6.58 The government has set new and stringent targets for a reduction of energy use and CO_2 emissions by 78% by 2035. The new targets were set out in April this year in the UK's sixth Carbon Budget, and have since been brought into law by way of the Carbon Budget Order 2021. BBC radio and commercial radio broadcasting are moderate users of energy, operating analogue and digital radio networks as well as providing services via digital television and over IP networks. There is a considerable degree of simulcasting – for example, most AM and FM services are simulcast on DAB. A key objective for the Review was to understand the energy impact of UK radio in more detail and to determine what steps broadcasters and the wider industry will need to take between now and 2035 to reduce its share of CO_2 emissions.

6.59 The UK radio industry is calculated to consume around 115 GWh/year of energy at an estimated £16 million per annum on electricity for transmission; the electrical energy equivalent to that used by 30,000 households. This represents around 0.03% of UK energy use. Of this, around three quarters of the energy is used for analogue radio broadcasts (FM & AM) and one quarter for digital radio broadcasts (DAB). Most of the radio stations provided as analogue broadcasts are duplicated on DAB transmission networks which also carry many digital-only services. Using information from the BBC, Arqiva and commercial radio, the Review has calculated the overall energy consumption and costs of the various broadcast transmission modes, as set out in the table below.

ELECTRICITY CONSUMPTION AND COST BY TRANSMISSION PLATFORM

No of Platforms	Platform	GWh/year			@£0.14/unit
		Average	Median	Total	£m/year
5	National FM	6.3	6.6	31.3	4.4
4	National AM	7.6	7.9	30.2	4.2
3	National DAB	6.4	6.0	19.1	2.7
-	Local & Nations FM	-	-	14.3	2.0
-	Local & Nations AM	-	-	10.2	1.4
-	Local DAB	-	-	9.1	1.3
	Grand Total	**-**	**-**	**114.3**	**16.0**

Note: "New Service" is defined as an additional, incremental radio station that could be added to a multiplex
$ - this fill rate is not reflective of any formal BBC position on appropriate DAB+ bitrates.

6.60 Each national network consumes roughly the same amount of power (such that a national AM network uses about the same as a national FM network or a national DAB multiplex). Each AM and FM network carries a single station whereas DAB national multiplexes each carry between 11 and 22 stations depending on whether DAB+ is configured. Therefore, on a per radio station basis, DAB digital radio transmission is much more energy efficient than FM or AM.

6.61 The energy consumption of AM/FM/DAB transmission networks is fairly clear but forms only part of the overall picture on energy consumption which needs to also consider the energy use of listening devices. In October 2020, BBC Research & Development published a White Paper[157] examining the energy footprint of BBC radio services. The paper limited its analysis to BBC network radio only and concluded that "of all future scenarios modelled, we estimate that switching off AM, FM and DTV radio services, and retaining DAB and IP, leads to the largest energy saving – almost twice as much as moving to IP-only distribution." The BBC analysis considered not only the energy used by transmission but included listening devices and content production.

6.62 While the report by BBC R&D was able to make multiple scenario predictions for BBC network radio, there is not a direct read-across from all scenarios to all radio. However, there is a reasonable read-across from the report's analysis of BBC's network radio usage today to all radio. This indicates that listening devices are the most significant contributor to energy use (three times higher than transmission and accounting for around 75% of total emissions in comparison to 13% for analogue transmission networks) and of the different devices used for radio, radio listening on television has the highest per household served.

6.63 The BBC report also noted that of the three future scenarios modelled, switching off analogue radio and maintaining services on television led to the smallest reduction in overall energy, this being caused by numbers of listeners switching from analogue radio listening to radio listening on television. This conclusion is for BBC network radio, and we cannot assume the same would necessarily be the case for all radio. Finally, the BBC noted that when comparing their analysis to commercial radio and if stations have smaller audiences compared to the BBC, it is possible that distribution has a higher energy use per person than consumption (for instance, the BBC found this with the AM platform), though this will vary from station to station.

6.64 Any energy savings arising from the cessation of analogue transmission should be considered alongside listener behaviour. A large shift away from analogue listening to radio listening on television may offset some of the energy savings arising from the cessation of the analogue transmission. Promotion of DAB or IP listening may influence listener behaviour in order to reduce this effect and maximise the energy savings from the transition of radio to digital.

6.65 To put this into perspective and for the purposes of a simplified theoretical example: RAJAR data shows a typical radio listener listens to about 1000 hours of radio per year. For a typical television, this amount of 'on' time would consume around 50kWh per year over and above that used by a typical radio. Were AM radio broadcasts to cease and if 800,000 AM radio listeners switched to radio listening solely via their television sets, then the switch would lead to an increase in annual listening device energy consumption of 40GWh, which is the same as the savings from switching off the AM transmitters. This is only a theoretical

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157   BBC Research and Development, The energy footprint of BBC radio services: now and in the future, October 2020

example and would not represent real listener behaviour; however, it does give some indication of the magnitude of the impact of listening device consumption on overall energy consumption and the importance of a long-term strategy that results in a switch to lower energy use devices. More work is needed to estimate the overall energy usage of new and existing digital radio devices and the options for new technology to reduce energy use still further.

6.01 In conclusion, switching off analogue radio platforms would produce a useful, albeit relatively modest, reduction in carbon emissions, but is only a part of the overall carbon footprint of radio listening. Listening device energy consumption is more significant and the choice of digital listening device in any migration to digital may offset a large part of the analogue transmission energy savings. The Review's conclusion is that the government's carbon targets need to be part of future strategies for radio broadcasting given the government's clear intention to use carbon pricing which will increase energy and operating costs much faster than inflation and thus incentivising a faster switch to more efficient digital broadcasting. The potential reductions in carbon footprint in relation to transmission are not sufficient to mandate a switchover to digital in the short term. However, the radio industry has already started to turn off some AM services and the expected closure of analogue at some point after 2030 would align with the UK's carbon reduction goals.

CONCLUSIONS

6.02 The mix of distribution for radio services will continue to change as both AM and FM listening declines. The priority for the BBC and commercial and community stations will be to ensure that an audience-led, industry aligned approach to distribution continues to deliver the content audiences expect, at the same time as helping broadcasters and operators address the long-term cost and environmental challenges. This means coming together to plan for the retirement of AM services whilst ensuring that FM networks continue to offer a wide range of services until at least 2030.

6.03 Whilst the Review has decided against recommending a mandated switch off of FM until at least 2030, there is scope for a modest and targeted expansion to digital radio coverage in the interim period. The emergence of small-scale DAB opens the way to more small stations to move to digital broadcasting but DAB+ could also play a role in creating more capacity for new services. In addition, as listening via connected devices out of home grows, there would be benefit in looking at how radio is carried over mobile networks. Finally, the Review believes that environmental factors need to be factored into design and development of broadcast networks and figure more prominently in the design of device technology.

RECOMMENDATIONS

R.30 Industry should begin planning for the long-term retirement of analogue services in line with the projected decline in analogue listening - but set no mandatory dates for the end of AM services at this point of time. BBC, Wireless and Bauer (operators of national MW services) should develop a plan for the migration from AM services to take place at some point in the mid-2020s.

R.31 Government should consider making changes to legislation to protect the INR status of the two national commercial AM licensees post the closure of their AM networks and ahead of a full analogue switchover.

R.32 Industry should work closely with Mobile Network Operators to promote the build out of robust mobile data networks (5G) and deliver on-demand, streamed listener services focused on in-car listening.

R.33 Following on from the Plum report, radio broadcasters, transmission providers and Ofcom should initiate a programme of field-testing and trials to review and validate the Plum findings on 4G/5G coverage. The results of this testing should be discussed with Ofcom to ensure they include in their Connected Nations reporting a measure appropriate for reliable radio/audio streaming.

R.34 The government should explore the economic and social benefits of prioritising radio traffic when carried over mobile networks and consider how such prioritisation might be implemented.

R.35 Based on current trends, a transition from FM to digital (DAB and IP) will not be possible before 2030 but the radio industry should start to make plans and preparations in terms of long-term investment on that basis and revisit this in a further Review to be completed by 2026.

R.36 The BBC and commercial broadcasters should factor in higher FM costs to take account of the need for ongoing works to maintain FM services. In doing so, they should be guided by the principle that the FM network will need to be maintained at a reasonable standard of resilience until at least the early 2030s.

R.37 In a financial context which means any expansion of DAB coverage is likely to be modest in the next five years, industry to be commissioned (possibly through the Broadcast Radio Coverage Group) to:

1. Extend (through the addition of the second national commercial multiplex) the analysis of DAB network coverage deficiencies.

2. Develop a set of principles for prioritising DAB road deficiencies that recognises the importance of solid road coverage to listeners' use of the platform.

3. Apply these principles to deliver a ranked/prioritised list of deficiencies by multiplex and by Nation.

R.38 Network providers to develop innovative, low-cost DAB transmission solutions to address these network coverage deficiencies and work with multiplex operators to provide the optimum price.

R.39 DCMS to consider which of the deficiencies already identified by the BRCG and those road deficiencies identified through the additional BRCG work it could support with capital funding to deliver government objectives and level up disparities between the Nations of the UK.

R.40 Multiplex operators including the BBC to analyse costs and benefits and take decisions about plans and build timetables for any DAB network enhancements.

R.41 The government should ask Ofcom to review DAB+ to include:

a. Undertaking a market study to assess the current status of DAB+ device penetration and usage by listeners (both in-car and in home);

b. Initiating a call for evidence to fully assess the consumer, multiplex viability, licensing, market impact, public interest and regulatory implications of accelerating the shift of more digital radio services to DAB+.

R.42 Industry should, as part of future planning assumptions, commit to a target to lower overall energy use for (a) transmission and (b) radio sets (to support the government's net zero emissions targets). As part of this the government and industry should initiate new research on the energy use of devices and determine whether the current minimum receiver specification for digital radio devices should be updated accordingly with an energy efficiency target.

ENSURING A ROBUST AND SUSTAINABLE FUTURE FOR UK RADIO AND AUDIO