

RosinaSound

The Changing Landscape of Radio

A report for the British Library

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Background

The British Library (BL) is the UK's national library, with a broad user base ranging from academia to industry and from on-site to online.

The BL Sound Archive is the second largest sound collection in the world with around six million speech and music recordings covering a profusion of genres.

Within the Sound Archive is the nation's radio archive with nearly 200,000 hours of radio. However, there are no legal deposit arrangements for sound in the UK and an estimated 97% of current UK radio is not being preserved and adequately shared.

The BL's current Save our Sounds programme of work includes plans for a more comprehensive national radio archive solution that ensures the preservation of the existing recordings and puts in place systems for large-scale digital acquisition in the future.

The BL envisages a national radio archive based on capture of current and ongoing licensed broadcasting in the UK, with the expectation it will be selective, concentrating largely on speech-based programming.

This report outlines developments in radio and audio consumption, production and technology. It considers how these might impact the future of a national radio archive. It also considers what researchers of the future are likely to want from the content of today.

Defining radio

Radio is evolving beyond its formal definition of 'broadcast audio via the electromagnetic spectrum' as the way people consume audio is shifting. It would not make sense to limit a report about radio as a medium to broadcast-only audio as doing so would ignore a significant body of content.

For the purpose of this report we look beyond broadcast radio to consider the wider audio landscape including podcasts and on-demand audio content more generally.

We have adopted the definitions used by Ofcom for 'listening' activities. Where you have any doubt as to the meaning of a term (e.g. 'live radio') please refer to the Ofcom definitions table at the end of this document.

Conclusions

'There is a huge amount of technical innovation coming. ... The writing's on the wall for traditional radio.'
– Jason Phipps, Head of Audio, *The Guardian*

'There are big challenges for radio but radio isn't dead. It's still a very powerful medium.'
– Alison Winter, Head of Audiences, *BBC Radio and Music*

New technology could spell the end of traditional broadcast radio. Experts agree that traditional radio is evolving but not all agree on the scale or speed of the change.

This report sets out key trends in audio consumption, the audio industry and technology.

Conclusions are summarised here, with further information about each point in the corresponding numbered sections that follow.

1 Audiences – who listens?

1.1 Audience stability

The overall radio audience is stable. The majority of radio listeners have not changed the way they consume their content. Radio audiences are not, at present, being affected as dramatically by the digital revolution as audiences for music, newspapers or television.

1.2 Age differences

Younger people listen to live radio less. This is especially true in recent years as the number of alternative forms of media has grown. There is insufficient evidence to determine whether or not the younger generation of today will listen to the radio more as they grow older.

2 Timing – when do they listen?

2.1 Linear listening

Currently most radio listening is to linear transmission – listeners turn on a radio and hear what they hear. If an archive were to record only linear streams of broadcast radio it would capture the majority of audio content consumed in the UK.

2.2 On-demand listening

An archive that only captured linear transmission would miss emerging forms of audio media at a critical point in their evolution. The general trend in wider media consumption is towards content on-demand. For adults as a whole, viewing and listening to live services has fallen while consuming on-demand has grown.

2.3 Bite-sized listening

While linear listening is likely to continue, there is a trend for media to be consumed in ever-smaller chunks. Shorter segments do not necessarily result in less linear listening or less listening overall. The shareable, ‘snackable’ nature of segments means they can be used for promotion alongside linear broadcasts, or to reach different audiences.

3 Location – where do they listen?

3.1 Radio in cars

While in-car entertainment is undergoing rapid development, radio is likely to remain the dominant medium in cars for at least the next decade.

3.2 Radio in the home

Alongside the car, the home – and in particular the kitchen – remains the place where British people listen most to the radio. This helps explain why breakfast shows tend to have the biggest audiences and budgets, and therefore why these shows should be high on the priority list for inclusion in a national radio archive.

3.3 Radio at work

As people spend more of their working time with access to the internet (e.g. office workers with computers, but also manual workers with other internet-enabled devices) they will have access to a wider range of things to which they can listen. Current evidence does not suggest people are turning away from radio at work.

4 Devices – how do they listen?

4.1 Radio sets

Broadcast radio remains the means by which the majority of people listen to audio. The movement from dedicated radio devices to multipurpose media devices will continue to be slow and gradual for as long as the dedicated radio devices continue to function.

4.2 DAB

Digital audio broadcasting (DAB) will not replace FM any time soon. Digital switchover may lead to the loss of some stations and the opening of others. This is interesting to note although should not have a significant impact on the way a national radio archive captures content since there are better ways to do this than via AM/FM reception.

4.3 TV and web

Young people are more likely to have TVs rather than radios in their bedrooms and so tend to listen more to the radio via their TVs. Again, this is interesting to note although should not have a significant impact on the way a national radio archive captures content.

4.4 Mobile for radio

Radio apps compete for people's attention with all the other mobile apps available on a device – audio and otherwise. Streaming audio will quickly burn through most people's data allowances, a problem that content downloaded over Wi-Fi avoids.

4.5 Internet radio

Online only radio stations have made little impact in terms of listener numbers to date but are of growing interest and in many cases have a wider cultural impact than their listener numbers would suggest. Ideally a national radio archive would capture a selection.

4.6 Podcasts

While mobiles are not being used for listening to live radio they are the perfect device for on-demand content such as podcasts, and the service offering is evolving rapidly.

5 Content – what do they listen to?

5.1 Companionship

The medium of radio is about emotional connection. People like radio for its companionship and for the connection it provides with the wider world. For these reasons the availability of music streaming services has not and will not kill off radio.

5.2 Supporting content

Content that is related to radio output but provided on other media is becoming increasingly common and important in driving audience behaviour. A national radio archive would ideally include such content (e.g. web pages with further information, social media or live video streamed from the studio).

5.3 Relevant content

Increased choice means listeners can turn towards content that is more personal to them. The larger number of DAB stations increases the likelihood that one will be tailored to a specific need. The logical progression is for modular delivery of content to provide highly-personalised stations curated for individuals.

6 Industry

6.1 Consolidation

Commercial radio stations have consolidated and as such are dominated by three media groups (Bauer Radio, Global Radio, Wireless Group), each part of a larger media group of which radio broadcasting is one component.

6.2 'Compete or Compare'

In 2015, the BBC made a commitment to sourcing up to 60% of its radio output from the independent sector through open competition by 2022. This could provide an overall boost in the amount of audio production in the UK.

6.3 Democratisation

While commercial radio stations have consolidated, new technology has made it easier for new operators to enter the audio landscape. Again, this could provide an overall boost in the amount of audio production in the UK.

6.4 Variety

In 2016 there has been an explosion of choice on broadcast radio, especially on DAB where there are now more than 40 stations broadcasting nationally and more than 200 locally. Listeners have never been better served for radio here in the UK. The challenge for the BL is to work out which from all these stations can be archived.

6.5 Community radio

There is community radio in many parts of the UK – more than 240 independent, non-profit radio stations on air. Again, the challenge for the BL is to work out which from all these stations might be archived.

6.6 Podcast sector

Podcasting remains a minority adjunct to radio in the UK though it is interesting as a creative medium and is also the way many young people access speech audio content.

6.7 Pirate radio

For many, pirate radio is an important part of the UK's cultural life. A fully-representative radio archive might want to consider how it might legally document this output.

7 Technology

7.1 Modular delivery

Modular delivery mechanisms provide the building blocks for new ways to deliver radio: more personalised, more interactive, more contextually relevant. The BL should note that modular delivery *could* see the demise of the linear radio channel but we believe this will not be for at least ten years.

7.2 Personalised audio

Personalisation is coming but it is hard to predict the extent to which it will impact on linear radio services. Expert opinion is divided. Some think personalisation spells the end of radio as we know it, others think the serendipitous nature of live radio will always have a part to play.

7.3 Interactive audio

Interactive audio changes according to listener input – a consciously driven user experience, where the user guides what they hear by interacting with the content. This has the potential to fundamentally change the mode in which audio is consumed – more a 'lean forward' than a 'lean back' experience.

7.4 'Contextually variable content'

'Contextually variable content' is audio that varies depending on where and when you are listening – a specific application of the modular delivery mechanisms already mentioned. It is not yet clear at what point it will come into mainstream usage, but when it does it will be a challenge to add it to a national radio archive in a meaningful way.

7.5 Subscription-based audio

Subscription-based audio companies could be the next providers of intimate, companionable, speech-based audio content as they already have many of the tools required to deliver the modular content described in the previous sections.

7.6 Immersive audio

The BBC and others have conducted successful trials of 3D stereo sound using binaural recording, but while a national radio archive should include some of the high-end binaural productions we don't see this as a major trend in radio broadcasting.

7.7 Speech to text

It is only recently that broadcasters have begun using speech to text software. There could be some collaboration opportunities for the BL.

7.8 Voice recognition

While not directly connected to radio output, it will be important for the BL to monitor the development of voice assistants like Amazon's Alexa and Apple's Siri.

8 Researcher needs

8.1 Researcher types

In an ideal world a national radio archive would be used by researchers who are not simply interested in radio itself but are able to make use of the rich content and data contained within a selection of audio broadcasts.

8.2 Access requirements

A key factor for the success of a national radio archive will be accessibility, both in terms of how and where the system can be accessed as well as how easy it is to use the interface. Many archive projects have failed because potential users cannot get to them or if they can they do not understand how to operate them.

8.3 Reuse

To support reuse it will be useful to have clear copyright details attached to each piece of content indicating when and where it is possible for data or content to be shared.

8.4 Topic mapping

The more that items of content can be linked to each other, the more useful they become to researchers across all disciplines. Linking radio to other media via the BL's Universal Player will give radio more prominence as a research medium.

8.5 Content (that researchers might want)

Our workshops with the BL highlighted that researchers have an extremely diverse range of interests and needs. A national radio archive should include as wide a range of sources and programming as possible.

8.6 Data

Radio Joint Audience Research (RAJAR) measures and profiles the audiences of UK radio stations. It would be useful for a national radio archive to capture this data. RAJAR may be willing to make the data available for non-commercial use, potentially with a delay to when it is made available to archive users (e.g. five years).

9 Legal considerations

9.1 On-demand and original streamed content

Legislation provides a framework for the BL to capture UK radio broadcasts off air and on-demand content only if hosted on a UK server or domain. Further on-demand and streamed content will only be available via voluntary arrangements.

9.2 Personal content data capture

Data protection laws are being tightened and fines are being increased. The approach to the handling of personal data within a national radio archive is something that will need to be explored.

1 Audiences – who listens?

1.1 Audience stability

The overall radio audience is stable. The majority of radio listeners have not changed the way they consume their content. Radio audiences are not, at present, being affected as dramatically by the digital revolution as audiences for music, newspapers or television.

Music was distributed as singles and albums purchased outright – first on vinyl, later on cassettes and CDs, more recently as MP3s. This activity is being eroded by user subscriptions to services like Apple Music, Google Play and Spotify.

News articles were distributed via printed paper – newspapers and magazines delivered periodically. This activity is being eroded by news websites and social media.

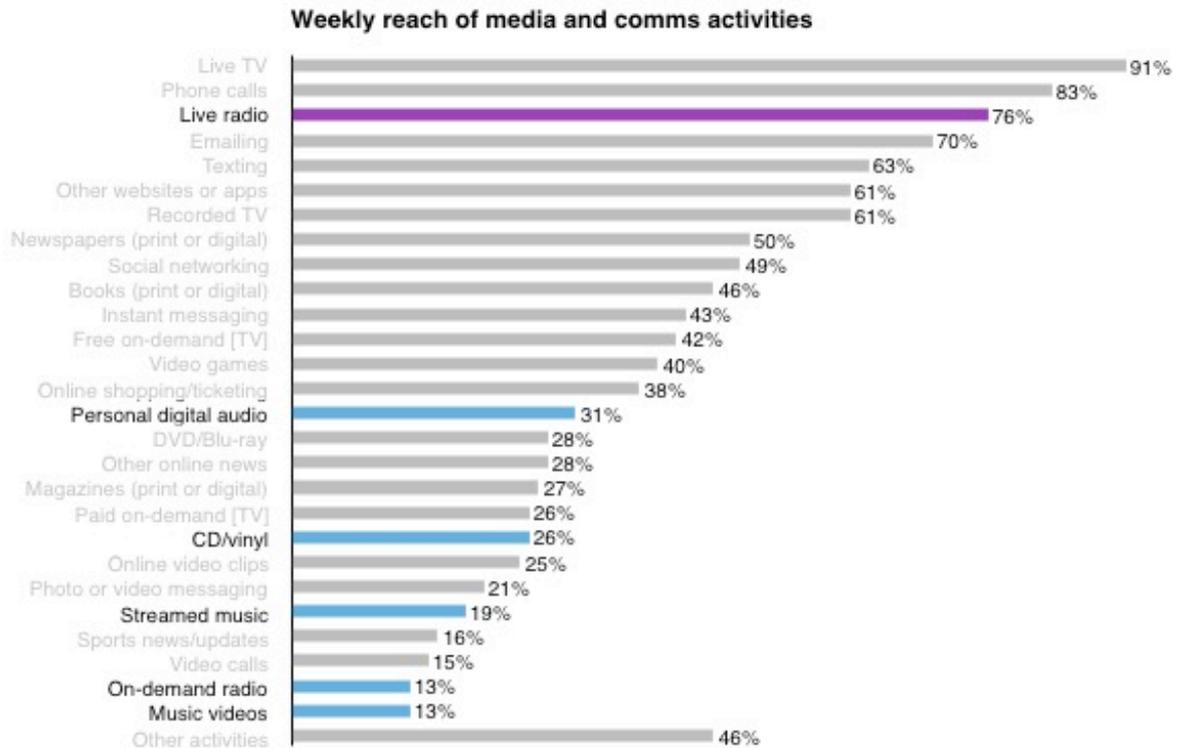
Television was distributed live – first via terrestrial broadcast, later via cable and satellite. This activity is being eroded by on-demand services via the internet, with viewers taking out subscriptions to video services like Amazon Prime, Netflix and YouTube.

People still access the news, listen to music and watch TV but the means of delivery and ownership have changed.

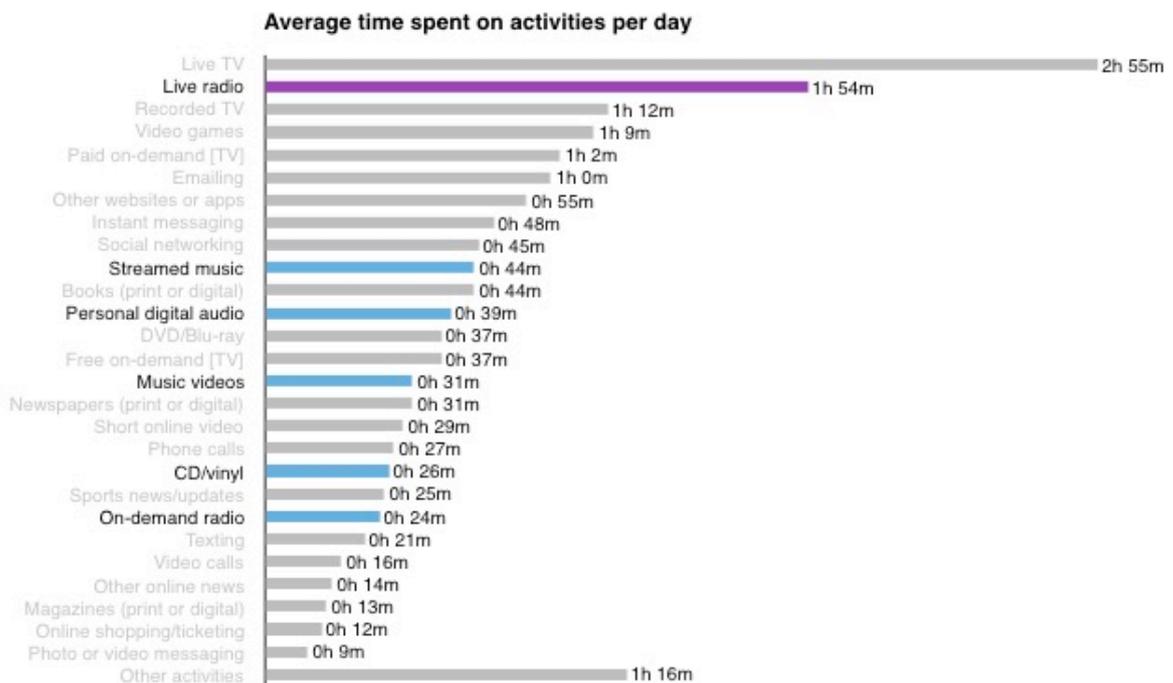
None of the industry experts we spoke with believe overall consumption of speech and music audio programming will reduce significantly in the next 20 years. There is less agreement on what will happen to broadcasting as a means of delivery.

Several factors will affect the speed at which broadcasting over the air gives way to distribution over the internet, including the increasing speed of mobile networks, the more widespread availability of connected cars and the move towards multipurpose media devices. We return to these points in sections 3 and 4.

For UK adults aged 16 and over, live radio is the third most popular type of media and communications by weekly reach (live TV 91%, phone calls 83%, live radio 76%).¹



Live radio is also the second most popular type of media and communications by average time spent per day (live TV 2h 55m, live radio 1h 54m).²



¹ Ofcom, *Communications Market Report* (4 August 2016), p26
<https://www.ofcom.org.uk/research-and-data/cmr/cmr16>

² Ofcom, *ibid*, p26

1.2 Age differences

Younger people listen to live radio less.³ This is especially true in recent years as the number of alternative forms of media has grown. There is insufficient evidence to determine whether or not the younger generation of today will listen to the radio more as they grow older.

Most of the time UK adults spend listening to audio they spend listening to live radio (71%). Looking at 16-24s as a group, time spent listening to audio is split between live radio (29%), personal digital audio (26%) and streaming services (25%).⁴

For adults, one of the primary 'need states' fulfilled by radio is connection to a community of likeminded people. Younger people have different needs, and some of those traditionally fulfilled by radio are now satiated by other means – music discovery is met through playlists available online, and a sense of community met by social media.

In a nutshell, we know younger people are more likely to use their mobile phones for their entertainment needs. Sales of radios are being dwarfed by sales of connected devices. This is why some analysts predict a massive disruption ahead for the radio industry, but the end of radio as a medium is not a foregone conclusion.

The big question is whether younger people who are not listening to live radio now will begin listening when they hit their thirties – as radio listening has in the past been shown to increase with age – or whether with new forms of media now available, the next generation will never become avid radio listeners.

If younger people do not turn to radio as they grow older this could decimate the radio industry. This is why many in the industry are looking with interest at the ways stations targeted at younger audiences are trying to gather new listeners (e.g. BBC Radio 1) since these approaches are strategically important for the medium as a whole.

³ Ofcom, *ibid*, p114

⁴ Ofcom, *ibid*, p114

2 Timing – when do they listen?

2.1 Linear listening

Currently most radio listening is to linear transmission – listeners turn on a radio and hear what they hear. If an archive were to record only linear streams of broadcast radio it would capture the majority of audio content consumed in the UK.

The majority of radio listening is still to continuous, live programming. Most linear listening is to content via a broadcast radio with a small amount through internet streaming.

Linear radio offers listeners simplicity of use, serendipity of schedule, and the community of the live audience.

The three biggest commercial radio operators (Bauer Radio, Global Radio, Wireless Group) are still committed to linear radio as the foundation of their businesses.

Despite the worry about younger audiences switching off, the commercial groups are betting on live radio as they've not seen the evidence that podcasting and on-demand content more generally are going to eliminate linear listening in the short term.

2.2 On-demand listening

An archive that only captured linear transmission would miss emerging forms of audio media at a critical point in their evolution. The general trend in wider media consumption is towards content on-demand. For adults as a whole, viewing and listening to live services has fallen while consuming on-demand has grown.

Over time more listeners will access radio online (either via PC or mobile) and this in turn facilitates more personalisation and the opportunity for other linked services. How quickly these develop is the subject of widely varying speculation.

The commercial radio industry, while investing most of its resources in linear broadcasting, provides on-demand content via its own apps and websites as well as via Radioplayer. Meanwhile, the licence-funded BBC has invested in its iPlayer Radio offering across multiple platforms.

One popular form of on-demand radio content is podcasting (covered in detail later in this report). In terms of audience numbers, the success of US podcast Serial in 2014/15 contributed to a rise in podcast listening in the UK. Detailed podcast figures are not publicly available, chiefly because podcasts can be downloaded via a range of proprietary platforms that do not share data.

Amazon is about to launch a new strand of original speech content, Audible Channels, via its existing Audible platform, further broadening the content available on-demand. Amazon's huge marketing power could potentially increase the size of this audience.

2.3 Bite-sized listening

While linear listening is likely to continue, there is a trend for media to be consumed in ever-smaller chunks. Shorter segments do not necessarily result in less linear listening or less listening overall. The shareable, ‘snackable’ nature of segments means they can be used for promotion alongside linear broadcasts, or to reach different audiences.

Platforms such as Vine, Instagram and Snapchat have captured the imagination of today’s youth, purposefully limiting video length to somewhere between six and 15 seconds, depending on the platform.’⁵

Data on the number of hours of audio bite-sized content consumed via social media is not readily available. Measurement companies like Radio Joint Audience Research (RAJAR) and Media Monitor are not yet including this in their questioning. However, it is apparent from its prevalence on social media that bite-sized content is becoming a significant form of media – where text, radio (with added pictures) and video often sit side by side.

Traditionally it was thought that audio was not good for sharing as the internet was designed around images and text. Increasingly tools are being created that allow radio to be clipped and shared (e.g. This American Life’s Shortcut launched in October 2016):

‘Have you ever heard a moment on the show that you wish you could share with your friends? Well, now you can! Shortcut is a new app we created that allows you to turn your favorite podcast moments into videos that you can post to social media. It’s kind of like making a gif, but for audio.’⁶

⁵ Max Pepe, *Why short-form video creative is catnip to millennials* (27 May 2015) Campaign <http://www.campaignlive.co.uk/article/1348561/why-short-form-video-creative-catnip-millennials>

⁶ <http://www.thisamericanlife.org/blog/2016/10/introducing-shortcut> (11 October 2016)

3 Location – where do they listen?

3.1 Radio in cars

While in-car entertainment is undergoing rapid development, radio is likely to remain the dominant medium in cars for at least the next decade.

In the UK, 69% of people listen to audio in a vehicle at some point during the week.⁷ When driving, radio is part of the routine: 84% of car buyers ‘always’ or ‘mostly’ listen to the radio on every journey.⁸ When reviewing radio consumption and the resultant archiving requirement, it is therefore critical to consider the developments taking place in vehicles.

In-car listening accounts for 24.5% of all listening (up from 16.9% in Q2 2015) and shows signs of continued growth. Digital in-car listening hours grew by 49% year-on-year to 58m hours in 2015.⁹

Growth in digital listening can be ascribed to the number of new cars fitted with a digital radio as standard (now over 85%) as well as the increased popularity of listening via a smartphone (over one million people listen to digital radio via their phones in their cars).¹⁰

The level of in-car listening in the UK, where it is estimated to be around 20% of all listening, is still low compared to the US and Australia, where it is estimated to be around 50-55%.¹¹

Today there are many attractions competing with the radio for a driver’s attention – from audio content stored on personal devices and played back via an ‘aux in’ socket, USB or Bluetooth, through live streaming content delivered over wireless networks, to new interfaces such as Android Auto, Apple CarPlay and Ford’s SmartDeviceLink.

In the UK, audio content providers like Audible and Spotify now sit alongside the BBC and commercial radio stations as sources of in-car audio. Elsewhere in the world there is additional competition from other operators (e.g. the US-based SiriusXM satellite radio network).

In multi-occupancy cars, with increasingly personalised consumption, passengers may be listening to separate content from the driver on headphones and/or watching portable devices or video players pre-installed in the rear seats.

⁷ RAJAR, *Audio Time* (Autumn 2015)
http://www.rajar.co.uk/docs/news/Audio_Time%20_FINAL.pdf

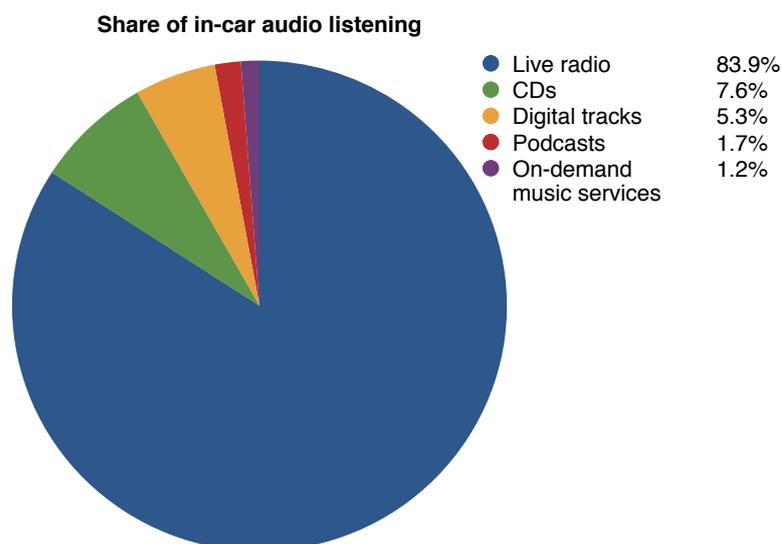
⁸ Radioplayer, *Great Cars Need Great Radios* (February 2016)
<http://www.radioplayer.co.uk/great-cars-need-great-radios>

⁹ DRUK, *Expansion in digital station choice...* (4 August 2016)
<http://www.getdigitalradio.com/dab-news/view/624>

¹⁰ CAP / SMMT, *Digital Radio UK* (August 2016)

¹¹ James Cridland, *Radio and Internet News* (April 2016)
<http://rainnews.com/james-cridlands-future-of-radio>

Despite all the challenges, radio continues to dominate, and live radio accounts for 84% of all in-car listening compared to 1.2% for on-demand music services.¹²



So what of the future? In November 2014, the trade body Digital Radio UK (DRUK) conducted a ‘Digital Dashboard Audit’ where it spoke to product managers in the UK and Europe to establish future plans for radio in the context of connected car strategies.¹³

Its report states that ‘100% of manufacturers said that broadcast radio would remain part of the dashboard for the foreseeable future’¹⁴ and concluded that ‘broadcast radio is not going to disappear from the dashboard’.¹⁵

However, the report also reported that ‘radio’s prominence is not guaranteed longer-term’: ‘There is evidence that radio’s prominence could be eroded and radio could become harder to find for consumers. This is partly due to a greater number of audio sources in the car (e.g. Bluetooth, USB) and also because infotainment systems are being designed with different customer segments in mind.’¹⁶

Devices such as the forthcoming Radioplayer car adaptor (currently in beta testing) which will switch between FM, digital audio broadcasting (DAB) and streaming, are designed to tackle the challenge of offering a seamless listening experience including digital services, regardless of platform.

With 37 million vehicles on the UK’s roads,¹⁷ there is still a substantial number without digital radio or new technology, so uptake of easy-to-use methods of accessing digital content will be critical to maintaining radio’s position on the dashboard.

¹² RAJAR, *ibid*

¹³ DRUK, *Digital Dashboard Audit* (November 2014)
<http://www.getdigitalradio.com/industry/digital-dashboard-audit>

¹⁴ DRUK, *ibid*

¹⁵ DRUK, *ibid*

¹⁶ DRUK, *ibid*

¹⁷ SMMT, *Motor Industry Facts* (2016)

A member survey by the Automobile Association found there was ‘clear price resistance’ to adaptors – 53% of drivers without digital radio would consider buying a car adaptor, but only if the price was under £100; 4% would pay over £100 and 43% would not buy one.¹⁸

Alongside new receiver technology, radio broadcasters will need to adapt content to listeners’ changing requirements. While radio was often an essential choice for travel news, in-car satellite navigation systems or personal devices with mapping, which incorporate live traffic flow data, are increasingly challenging this function.

There are reasons why stations may continue to carry traffic reports other than the listener requirement, such as the ability to sell commercial sponsorship around the reports. Meanwhile some stations such as Global’s Radio X have chosen not to broadcast the once ubiquitous travel news bulletin for in-car listeners any longer.

Autonomous vehicles could pose a greater threat to radio audiences. Forbes reported in March 2016 that ‘Ford Motor Company envisions its autonomous vehicles as mobile movie theaters, with screens and projectors that vanish into the ceiling as passengers take over the wheel, according to a patent.’¹⁹

While widespread adoption of the self-driving car may be a long-term goal for vehicle manufacturers, it could be that the nature of the driving experience changes so comprehensively in the future that radio is no longer facing just competition between platforms and content but from other experiences entirely.

For radio archiving purposes it seems likely in the short to medium term that the leading position of live radio in cars is unlikely to change, although in common with general listening patterns, consumption of digital services in a variety of forms is expected to increase.

3.2 Radio in the home

Alongside the car, the home – and in particular the kitchen – remains the place where British people listen most to the radio. This helps explain why breakfast shows tend to have the biggest audiences and budgets, and therefore why these shows should be high on the priority list for inclusion in a national radio archive.

Many listeners are loyal to the station they switch on at breakfast and will stay tuned in for the rest of the day. But radio in the home in particular is at risk from the increase of music devices (e.g. Sonos) that make it easier to listen to other things.

‘The Sonos setup has changed the way I listen to music because it brings everything I love into a single app and makes it easy to play my choice of music in any room (or the whole house) with just a few clicks.’

– Owen Williams, technology expert, *Next Web*²⁰

¹⁸ *World DAB report*

<https://www.worlddab.org/country-information/united-kingdom/history/automotive>

¹⁹ Jeff McMahon, *Ford Turns The Driverless Car Into A Driving Movie Theater*, Forbes (March 2016)
<http://bit.ly/2e6TOFM>

²⁰ Owen Williams, *How Sonos completely changed my music listening habits* (10 March 2014) TNW
<http://thenextweb.com/gadgets/2014/03/10/sonos-completely-changed-music-listening-habits>

The Sonos range includes a variety of wireless speakers that connect via a user's Wi-Fi network to streamed music from internet services or from media stored on local computers on the same network.

It is worth noting that one of the key selling points of the Sonos system is ease of access to internet radio stations.

*'With TuneIn Radio, listen to over 100,000 free preloaded local and international radio stations, shows and podcasts streaming from every continent.'*²¹

Despite the wide range of alternative sources available on Sonos (e.g. Apple Music, SoundCloud, Spotify), anecdotal evidence suggests listening to the radio via Sonos is very popular. It is just possible this new generation of audio devices will increase radio listening. Precise figures of what Sonos users listen to are not publicly available.

3.3 Radio at work

As people spend more of their working time with access to the internet (e.g. office workers with computers, but also manual workers with other internet-enabled devices) they will have access to a wider range of things to which they can listen. Current evidence does not suggest people are turning away from radio at work.

It is common for people to listen to the radio as a shared experience in many workplace situations. Commercial music radio dominates.

US research firm Edison surveyed adults working in a range of jobs, including both indoor and outdoor roles, and found that 71% of people listen to some form of audio at work.²²

In the UK there are clear spikes in listening to the radio via the internet during working hours. These do not correspond with peak listening to broadcast radio which occurs at breakfast.²³

²¹ <http://www.sonos.com/en/streaming-music>

²² Edison Research, *What's Working at Work* (20 September 2013)
<http://www.edisonresearch.com/whats-working-at-work-new-research-on-workplace-radio-listening>

²³ BBC, *iPlayer Performance Pack - April, May, June 2016* (July 2016), slide 20
<http://www.bbc.co.uk/mediacentre/latestnews/2016/iplayer-perf-pack-june-may-apr>

4 Devices – how do they listen?

4.1 Radio sets

Broadcast radio remains the means by which the majority of people listen to audio. The movement from dedicated radio devices to multipurpose media devices will continue to be slow and gradual for as long as the dedicated radio devices continue to function.

Historically most types of media offered content, distribution and device in one chain or package (e.g. newspapers, radio, TV). This is changing as people move to using multipurpose devices to access media. But radio has been slower to change.

Live radio listening hours are dominated by radio receivers sets (AM/FM 44%, DAB 36%). Devices connected to the internet have a much smaller share of listening hours (e.g. desktop/laptop 6%).²⁴

Radio sets are cheap to buy, so households tend to have more than one, while having the latest model doesn't significantly affect the listening experience. Old radios have not (yet) become obsolete. While most households have thrown out their analogue TVs, cassette players and typewriters, their analogue radios continue to receive broadcast content.

The product life cycle of a radio device is considerably longer than that of a smartphone, so traditional radio listening via radio sets is likely to continue until the receivers no longer work and are replaced by other devices.

Technology is often the big driver of change, but the technology behind radio distribution has not significantly changed in recent years. Other media (e.g. newspapers and television) are more likely than radio to be consumed on multipurpose devices (e.g. smartphones or tablets). For radio, the radio device remains dominant – people appreciate its simplicity.

'Radio companies have continued to innovate on new platforms, particularly mobile, but the vast majority of listening is still on dedicated devices: kitchen and car radios. There are lots of reasons for this: radio is mostly a secondary medium, radios are cheap to make and easy to use, but mostly is just about simplicity – broadcast radio does a simple job really, really well.'

– Will Harding Group Strategy & Development Director, Global Radio

Most mainstream audiences are not looking for enhanced devices that offer more listening choice.

²⁴ RAJAR, *Measurement of Internet Delivered Audio Services (MIDAS)* (Spring 2016)
http://www.rajar.co.uk/docs/news/MIDAS_Spring_2016_FINAL.pdf

4.2 DAB

Digital audio broadcasting (DAB) will not replace FM any time soon. Digital switchover may lead to the loss of some stations and the opening of others. This is interesting to note although should not have a significant impact on the way a national radio archive captures content since there are better ways to do this than via AM/FM reception.

For years the radio industry and governments have suggested dates when FM could be switched off and the UK would move to DAB only. These dates have come and gone. FM radios have long lifespans as do cars, the majority of which are fitted with FM radios. Until the proportions change significantly the status quo is likely to continue.

The Minister of State for Digital and Culture has said the government will not consider options for turning off FM broadcasting until at least 50% of listening is via DAB radios. It is likely the criteria will be met in the next two years – though this just triggers a review, which the Minister hinted is only the first step.²⁵

As radio listening hours slowly shift from analogue to digital, certain stations are likely to institute their own switchover for commercial reasons. Some local AM stations that have needed to relocate AM transmitter sites have chosen to close them and continue broadcasting on DAB or online instead.²⁶

Larger-scale music stations like Absolute Radio, which have low consumption via AM relative to other channels, have indicated they will stop broadcasting on AM when the distribution costs outweigh the benefits and other platforms offer better value for money.

A similar situation is likely to occur with FM over the coming years.

Note that Norway begins the process of FM switch-off for national and larger local stations (i.e. big cities) from January 2017. It will be interesting to note if this has a significant impact on listening hours and the range of stations available.

4.3 TV and web

Young people are more likely to have TVs rather than radios in their bedrooms and so tend to listen more to the radio via their TVs. Again, this is interesting to note although should not have a significant impact on the way a national radio archive captures content.

Over the last seven years, the proportion of people listening to live radio via TV has increased. According to the latest figures from RAJAR, the share of all radio listening via a digital platform stood at 45.3% in Q2 2016 – made up of DAB (32.3% share), digital TV (5.1%) and online via computer or an app (8%).²⁷

²⁵ Matt Hancock, Minister of State for Digital and Culture, speaking at the Radio Festival 2016 <https://www.gov.uk/government/speeches/minister-for-digital-and-culture-speech-the-radio-festival-2016>

²⁶ Stuart Clarkson, *Medium wave transmitters turned off in Berkshire* (May 2015) Radio Today <http://radiotoday.co.uk/2015/05/medium-wave-transmitters-turned-off-in-berkshire>

²⁷ <http://mediatel.co.uk/newsline/2016/08/04/rajar-q2-2016-digital>

BBC Radio 1Xtra has three times the number of listeners via TV than BBC Radio 6Music. These figures suggest the device and platform are less important than the content – people will find a way to listen to something good.

DAB and web platforms arrived at a similar time in the late 1990s, but even with the internet's wider reach just 21.4% of radio listeners do so online compared with 49.7% who tune in via DAB each week. DAB listeners also listen to five times more live radio than internet listeners.

4.4 Mobile for radio

Radio apps compete for people's attention with all the other mobile apps available on a device – audio and otherwise. Streaming audio will quickly burn through most people's data allowances, a problem that content downloaded over Wi-Fi avoids.

In huge numbers of households people have got four, five, six old-fashioned radios. ... What characterises all of radio listening is the convenience of the platform, and one of the problems for the young if they want to listen live is how bloody expensive it is on your mobile; on your mobile it's really expensive, bill shock is a problem'

– Helen Boaden, Director, BBC Radio

We expect that as mobiles become a more common device for listening to audio that more radio content will be offered in segmented downloadable forms.

BBC Radio 1, in its bid to attract younger audiences to radio, is building a mobile first strategy and aiming to become the 'Netflix of music radio', adding 25 hours of on-demand programming each week.²⁸

'Radio 1 should have curated on-demand programming on a par with live on-air programming. ... I want the production teams thinking just as much about the on-demand, phone-first programming as they are about the live radio programme. ... That is a huge step-change in terms of a radio station's thinking and attitude.'

– Ben Cooper, Controller, BBC Radio 1²⁹

Ben Cooper's statement is not a streaming strategy but does show an understanding of how people use mobile phones to access individual pieces of content. Matt Deegan echoes this in his blog post for the BL's Future of Radio series:

'The mobile is a complex device that can do lots of things. You have a much wider choice of content types to allow a more specific, tailored experience. The games that you choose, the videos that you choose, are not the same as everyone else. A mobile does not have the limits on content choice that a broadcast device has. For radio broadcasters – who tend to be in the mass, non-personalised business – this makes mobile less easily conquerable.'

³⁰

²⁸ Daniel Gumble, New phone-first new phone-first playlists launched (19 September 2016) Music Week <http://www.musicweek.com/media/read/mistajam-replaces-annie-mac-on-bbc-radio-1-new-phone-first-playlists-launched/065979>

²⁹ Mark Sweney, BBC Radio 1 aims to be 'Netflix of music radio'... (19 September 2016) The Guardian <https://www.theguardian.com/media/2016/sep/19/bbc-radio-1-aims-to-be-netflix-of-music-radio-with-phone-first-strategy>

³⁰ Matt Deegan, *The Future of Radio: blog post* (September 2016) British Library blog <http://blogs.bl.uk/sound-and-vision/2016/09/the-future-of-radio-no-2-matt-deegan.html>

People are used to interacting with mobile content – mobile is a ‘lean forward’ device – so while using mobile devices they are likely to want more than the ‘lean back’ listening experience offered by traditional radio receivers.

Interactivity on mobile provides radio stations and producers with opportunities for enhancements. Products like the My Capital Xtra app have already started to do this, allowing listeners to skip tracks from broadcast streams and replace them with songs and content they like better.

Achieving this requires a change to how content is created, stored and distributed. It also requires stations to rethink the priority given to their live, linear products. To succeed on mobile – the place where young people access content – broadcasters are understanding they need to deliver content in segments that are more interactive. We return to this point in sections 7.

One significant issue with listening to radio on mobile phones is that data coverage outside cities is patchy and the cost of data can be prohibitive for many. People are nervous about streaming while using their data allowances. This means phones are currently used less for continual radio listening but more for downloadable audio content instead.

If radio broadcasting were switched off tomorrow and everyone instead used their mobile phones to receive radio programming, it is estimated there would be insufficient bandwidth to enable the same amount of listening.³¹

Many of the limitations of listening to radio via mobile could be solved by fifth generation mobile networks (5G). The proposal is that the next major phase of mobile telecoms will push far beyond what is possible with the current 4G standard.

Rather than faster peak internet connection speeds, 5G plans to offer higher capacity than 4G, allowing a higher number of mobile broadband users per area and consumption of higher or unlimited data quantities per month and per user. This would make it more feasible for a larger proportion of the population to consume high-quality streaming media on their mobile devices when out of reach of Wi-Fi hotspots. However, covering the entire country at sufficient capacity is not going to happen in the short term.

4.5 Internet radio

Online only radio stations have made little impact in terms of listener numbers to date but are of growing interest and in many cases have a wider cultural impact than their listener numbers would suggest. Ideally a national radio archive would capture a selection.

Many community interest radio stations start out streaming over the internet – they may once have looked to pirate broadcasting but the internet is simpler and risk free. There may be few listeners, but internet stations do not need to adhere to Ofcom rules.

There is no definitive chart of listener numbers for internet radio stations. However some companies are developing systems to counter this.

³¹ Dan McQuillin, Broadcast Bionics

Triton Digital, a software company in the United States, measures worldwide internet radio audiences using actual data collected from streaming servers rather than the estimated data used by listener survey panels.

SHOUTcast is cross-platform software for streaming media over the internet. The software allows digital audio content, primarily in MP3 format, to be broadcast to and from media player software, facilitating the creation of internet stations.³²

The SHOUTcast website shows the number of concurrent streams for any internet radio station using the software at any given time.³³ This could be one way to identify popular stations although it is not definitive. For example, Dance Wave!³⁴ has been one of the most popular stations during the time of researching this report with around 12,000 listeners at any given time. But other stations using alternative software are not listed here.

4.6 Podcasts

While mobiles are not being used for listening to live radio they are the perfect device for on-demand content such as podcasts, and the service offering is evolving rapidly.

Podcasts are ideal for mobile devices because episodes can be downloaded in advance over a Wi-Fi network thus avoiding excessive data charges.

Podcasts tend to be a headphone experience that are listened to alone rather than shared with work colleagues or family, and as such podcasting provides the perfect vehicle for a ‘niche listen’.

Ideally a national radio archive would capture podcast content based on top charting episodes and series not already captured via other means (e.g. excluding BBC Radio 4 programmes that dominate the podcast chart in the UK).

iTunes at the moment is considered the definitive chart for podcasts but the numbers behind the chart are not released publicly. The formula for how the chart is compiled takes account of trends in listening in an attempt to keep the list rotating, thereby exposing the audience to new material.

A podcast archive could, in conjunction with chart-based selection, have a voluntary upload system where a producer assigns rights at the time of submission. This would reduce the administrative work in managing the archive. However, there is some uncertainty whether podcast producers will actively engage in this additional work.

‘If you asked us to personally upload our content to the British Library we wouldn’t be bothered, just more admin. Better to go via [the podcast hosting companies] Acast, Audioboom, Libsyn and SoundCloud.’

– Pete Donaldson, Broadcaster and Podcaster, Football Ramble

³² <https://en.wikipedia.org/wiki/SHOUTcast>

³³ <https://www.shoutcast.com>

³⁴ <http://dancewave.online>

In order to make the process user friendly and work at scale, one would need to provide a system where users completed a form once to capture an entire series. This would need to be promoted at podcasting events and within the podcasting community. Moderation would be needed along with a clear policy for what would, and would not, be preserved.

As Pete Donaldson suggested, an easier approach might be to arrange a licensing arrangement with a large aggregator. It could encourage podcast producers to offer rights to the BL when signing up to the hosting service.

Another option would be to invite a rolling panel of guest curators to select podcasts for preservation. This could be a highly-regarded position amongst podcast professionals, akin to an artist in residence. It would also provide a press opportunity every time a new curator is announced.

5 Content – what do they listen to?

5.1 Companionship

The medium of radio is about emotional connection. People like radio for its companionship and for the connection it provides with the wider world. For these reasons the availability of music streaming services has not and will not kill off radio.

In fact, on-demand music services are starting to add speech to their output (e.g. streaming service Apple Music provides speech through its Beats 1 station), evidence that even the bigger music providers can see the significant role speech radio can play in people's lives.

Music streaming is disrupting music on physical media and downloads, but radio is more than a distribution channel – it has a distinct offer.

The unique nature of radio is especially true at breakfast and drivetime when even the stations that bill themselves as 'more music' provide additional speech content at a time when listeners are most engaged.

Though podcasting offers a different style of speech programming, the majority of people who listen to speech radio continue to listen to either national BBC stations, talk radio stations, or a mix of speech and music stations.

Radio and podcasts talk directly to 'you' (singular) the listener and 'you' (plural) as part of the wider audience. The best radio is slick and well designed, carefully crafted to make listeners feel connected with each other and the wider world, a special part of a club.

Radio stations constantly evolve, reinventing themselves as tastes change and strong personalities wax and wane, the finer breakdown of output constantly shifting. But the companionship and intimacy are constant.

5.2 Supporting content

Content that is related to radio output but provided on other media is becoming increasingly common and important in driving audience behaviour. A national radio archive would ideally include such content (e.g. web pages with further information, social media or live video streamed from the studio).

The full radio experience encompasses more than just the audio – especially for younger audiences. Many radio stations provide additional content alongside their core audio output (e.g. the BBC Radio 1 YouTube channel has 3.3m subscribers and is used to drive audiences to the linear listen, but has also become a destination in itself).

Many radio studios are now designed with integrated software to allow the broadcasters to consume large amounts of social data while pushing original audio, video and social content to a variety of platforms.

One of the biggest changes to radio broadcasting in the past few years has been adding pictures to radio. The BBC and commercial stations use tools like the ‘virtual director’ to capture video footage of whoever is talking on camera and, when the mics are down, automatically add in station graphics.

‘Why would you record the Chris Moyles audio and not the video that is being recorded at the same time? The British Library needs to understand that radio is not just audio.’

– James Cridland, Radio Futurologist

Supporting videos are not generally broadcast as full live streams alongside the radio programme (although this does happen in Nottingham where GEM106’s breakfast show is broadcast on the local TV station) but rather through selected highlights that can be shared across social platforms.

The internet is biased towards pictures. By adding images, animation or video to audio, a station can make the audio itself more sharable, thereby allowing broadcasters to reach a wider audience. Supplementary content may also take the form of playlists and social media assets.

LBC has had success posting video clips of phone-ins that are then picked up as part of the wider news agenda. For example, former Green Party leader Natalie Bennett’s interview with Nick Ferrari was deemed by many as the worst political interview ever and had a significant impact on further coverage of the 2015 election.

We acknowledge that the BL is unlikely to have the resources to include a wide range of supporting content in a national radio archive from the outset, and its inclusion brings up other complex issues around copyright. However, supporting content is increasingly an important part of a more interactive radio experience.

For future iterations of the radio archive the BL might want to consider how to integrate or connect the radio archive to content of this kind. The BL should also explore the overlap between a national radio archive and its own web archive.

5.3 Relevant content

Increased choice means listeners can turn towards content that is more personal to them. The larger number of DAB stations increases the likelihood that one will be tailored to a specific need. The logical progression is for modular delivery of content to provide highly-personalised stations curated for individuals.

Absolute Radio allows listeners to choose the music they want to hear when they listen to the Christian O’Connell breakfast show. This is broadcast on the main Absolute Radio station and syndicated so it appears he is also broadcasting the same show on Absolute Radio 60s, 70s, 80s and 90s. A listener hears the same links but different music.

*'Christian fires one button and seven different songs play across the stations. Each is matched for duration, mood, artists and tempo, meaning that when he re-opens his microphone, there's no jarring and all of the services unite for the link.'*³⁵

Absolute Radio has also been the commercial pioneer of the logged-in listen. Its Absolute Radio app offers '50% fewer ads when you sign in'. This form of logged-in listening works from a commercial radio perspective as it means Bauer can charge five times more for each advert – not 'more music, less ads' but 'more data, more valuable ads'. The approach also works from a user perspective as commercial content is targeted to the user. The same system is soon to be rolled out across the whole of Bauer.

Tailored radio apps are already available in the US that allow listeners to select what podcasts they want as one long stream of continuous content. Services like Audible Channels, Gimlet, Howl and NPR One are competing to be the 'Netflix of audio' – putting personalisation at their heart.

In commercial terms logging in to listen to the radio delivers clear benefits. In user experience terms, logging in can be a barrier to entry. Many people still prefer the simplicity of the 'lean back' radio listen where they just have to turn it on.

'The double-edged sword that is logged-in listening.'
– Michael Hill, Founder and MD, Radioplayer

The BL should keep abreast of developments in personalisation as they are likely to change the context of how people listen to audio, and indeed consume all media. We expect personalised media to develop considerably over the next decade. We return to this point in section 7.

³⁵ <https://www.bauermedia.co.uk/uploads/AbsoluteMediaPack2016.pdf>

6 Industry

6.1 Consolidation

Commercial radio stations have consolidated and as such are dominated by three media groups (Bauer Radio, Global Radio, Wireless Group), each part of a larger media group of which radio broadcasting is one component.

Consolidation has allowed these larger media groups to take local brands like Capital and Kiss to a UK-wide audience. This makes it easier for sales teams to sell advertising on each station and has led to a proliferation of spin-off brands on digital radio (e.g. Kisstory, Mellow Magic, talkRADIO).

By turning what were once multiple local radio stations into the national brand Heart, the biggest radio group, Global, has been able to repeat the same programming nationwide and only feature local programmes in the breakfast and drivetime slots, significantly reducing its costs by using the same presenter to record separate links for different local stations.

The implications for a national radio archive are twofold:

Firstly, commercial stations are already delivering content in complex segmented forms. While the main output is in a linear form, the delivery is anything but. Potentially the spoken-word content (including adverts which in themselves may have research value) could be repackaged and given to the BL as speech-only content, or packaged to avoid music.

Secondly, there are swathes of content being broadcast across the UK that are simply being repeated and would therefore be of no interest once the original source material has been captured. Selection of single sources or segments might be a more useful place to start when choosing what to archive.

6.2 ‘Compete or Compare’

In 2015, the BBC made a commitment to sourcing up to 60% of its radio output from the independent sector through open competition by 2022. This could provide an overall boost in the amount of audio production in the UK.

‘Compete and Compare’ would mean that aside from daily news, daily music shows, orchestras, schools programming, state occasions, weather and a handful of enduring titles like the Archers, all BBC radio output could be made by indies.

‘We expect that the number of eligible hours open to competition between in-house and indies will increase threefold from 9,000 hours now to around 27,000 hours at the end of the six year period.’

*– Helen Boaden, Director of BBC Radio*³⁶

³⁶ BBC, *BBC and RIG set out ‘Compete or Compare’ plans for radio*, (June 2015) <http://www.bbc.co.uk/mediacentre/latestnews/2015/compete-or-compare-radio>

While not having a significant impact on the radio archive itself, ‘Compete and Compare’ could result in a profusion of new creative companies making radio programmes.

6.3 Democratisation

While commercial radio stations have consolidated, new technology has made it easier for new operators to enter the audio landscape. Again, this could provide an overall boost in the amount of audio production in the UK.

In the US there has been a massive upsurge in podcasting and streamed content as a response to their more consolidated, homogenous radio networks, with Pandora and Spotify offering music streams and large podcast networks like Panoply and PodcastOne offering speech content on-demand. It is estimated that 21% of all Americans will listen to a podcast in 2016.³⁷

Radio programmes and podcasts are cheap and easy to make relative to other forms of media. The reducing cost of equipment, including editing software and good quality microphones, has led to people creating podcast shows or even stations from their own homes.

Major brands have also joined in to create radio stations over the past decade as setting up an internet station is a relatively low cost way of marketing a product or aligning a brand with a target audience.

In the UK brands like Monocle and Red Bull have set up highly complex radio offerings to which they have made long-term commitments. Recently BBC presenter Gilles Peterson launched his own music station Worldwide FM which was funded by WeTransfer.

Another notable addition to the breadth of radio available was in 2015 when Apple bought the headphone manufacturers Beats and launched Beats 1. While not wildly successful in terms of listening figures, the station is used successfully as a marketing tool for Apple’s streaming service Apple Music.

Beats 1 marks a significant development in radio – a technology company moving into a space that was the preserve of broadcasters. Apple is not alone, being followed by Amazon with its audiobook offshoot Audible investing heavily in original audio content. Spotify too is dipping its toes in the water by commissioning speech content and redistributing an ambitious slate of podcasts.

Both small operators and large operators that do not broadcast on AM/FM/DAB do not have to comply with Ofcom regulations, including the Broadcasting Code³⁸ which means scope for a more relaxed attitude towards accuracy, commercial references, political bias, religion and swearing.

Should the BL have the resources to archive internet radio stations and podcasts, the lack of regulation of the output may provide researchers with access to unguarded opinions not widely circulated elsewhere in the media.

³⁷ Edison Research, *The Infinite Dial* (10 March 2016)
<http://www.edisonresearch.com/the-infinite-dial-2016>

³⁸ <https://stakeholders.ofcom.org.uk/broadcasting/broadcast-codes/broadcast-code>

6.4 Variety

In 2016 there has been an explosion of choice on broadcast radio, especially on DAB where there are now more than 40 stations broadcasting nationally and more than 200 locally. Listeners have never been better served for radio here in the UK. The challenge for the BL is to work out which from all these stations can be archived.

2016 saw 18 new national radio stations launch on DAB, including Jazz FM, talkRADIO, and Virgin Radio. There are now three national Christian radio stations and a new British Muslim station called Awesome Radio. As well as the established national and local stations there are a further 70 station unique stations broadcasting as part of the Ofcom small-scale DAB trials.³⁹

There are approximately 400 local commercial and community radio stations on analogue radio that are not currently carried on DAB. Many of these stations cater for more niche audiences than the larger national channels like Classic FM or Heart.

Recently, the BBC and commercial radio have run popup stations, sometimes collaboratively, that bring niche audiences together. Some have been based around events (e.g. Eurovision), some around bands (e.g. Magic Abba) and some around seasons (e.g. Magic Soul Summer).⁴⁰

6.5 Community radio

There is community radio in many parts of the UK – more than 240 independent, non-profit radio stations on air. Again, the challenge for the BL is to work out which from all these stations might be archived.

To obtain a community radio licence, applicants must demonstrate that the proposed station will meet the needs of a specified target community (which Ofcom term ‘social gain’).

Community radio stations typically cover a small geographical area with a radius of up to 5km and are run on a not-for-profit basis. They can cater for whole communities or for specific areas of interest (e.g. a particular age group, ethnic group or interest group).

Some stations cater for experimental or urban music while others are aimed at lifestyle groups such as gay or transgender and cultural/recreational groups such as artists or religious communities. They can also bring community benefits such as training and community news and discussion.⁴¹

Community and alternative radio is now an area of academic study alongside research and analysis of the BBC and commercial radio forms. There has been a growth in grants awarded for research in this area leading to a growth of PhD theses and other publications.

³⁹ Ofcom, *Small scale DAB trials* (26 September 2016)
https://www.ofcom.org.uk/__data/assets/pdf_file/0021/91371/SSDAB-Final-report-26-Sep.pdf

⁴⁰ <http://www.bauermedia.co.uk/newsroom/press/magic-radio-launches-magic-abba-a-pop-up-digital-station-in-association-with-mamma-mia>

⁴¹ <https://www.ofcom.org.uk/manage-your-licence/radio-broadcast-licensing/community-radio>

The AHRC-funded programme ‘Connected Communities’ included the study of community audiovisual archives in its recent large scale funding round.⁴² In what is probably the largest-funded radio studies programme to date, the Transnational Radio Encounters research project was awarded over €1m.⁴³ This project saw university partners from across Europe working with industry partners BBC, Danish Broadcasting and Deutsches Rundfunk on specific archive challenges.

As community radio output is of growing academic interest now, it is certain to be of interest to researchers in the future. The challenge is, with so many stations in operation, deciding how to select a representative sample that will be interesting and useful.

6.6 Podcast sector

Podcasting remains a minority adjunct to radio in the UK though it is interesting as a creative medium and is also the way many young people access speech audio content.

The main reason podcasting has been slower to take off in the UK than in the US is the dominance of the BBC, which already offers a high standard of speech content on its radio stations and also converts much of this output to podcast format, thereby dominating the podcast charts with licence-payer-funded content.

A problem for UK podcasters in the past has been the inability for them to sell their own advertising space, but times are changing. Companies like Acast are now offering a service that includes hosting and ad sales, and recently Audioboo pivoted its business to rebrand as Audioboom, a podcast advertising sales company. The US podcast network Panoply has also announced it is opening a UK arm.

However, most independent UK podcasters are still not making their fortune or indeed financing the time spent producing the content, but these are still early days according to the platform hosts.

‘Podcasters need to invest now to grow their audiences in order to reap the rewards later, and I expect things to change significantly in around two years time when more advertisers realise the value of podcasting.’

– Ruth Fitzsimons, Audioboom

For a mainstream user, finding podcast content is a hurdle – the user journey around most podcast players is challenging. There simply isn’t enough room in the shop window for the many thousands of new programmes being created every week. This means listeners are driven by what the platform tells them is popular and thus the top 100 chart is self fulfilling.

‘Podcasting still faces a headwind as a mass-reach medium the implications of which are yet to be determined.’

– Dave Van Dyke, President, Bridge Ratings⁴⁴

⁴² <https://connected-communities.org/index.php/news/future-thinking-the-ahrc-connected-communities>

⁴³ <http://www.transnationalradio.org>

⁴⁴ <http://www.bridgeratings.com/podcasting-potential>

The technology behind podcasting – an audio file delivered via an RSS feed – is well established but ripe for reinvention. Podcasts are already modular pieces of data being delivered over the internet. As this is the direction of travel for all radio, podcasting is in many ways, the first out of the block.

Large technology companies like Amazon, Pandora and Spotify are experimenting with speech content on-demand (some of whom still call it podcasts). Their experience of personalised algorithm driven content could help fix some of the discovery challenges and lead to a greater distribution of speech audio which could significantly affect the reach of the format and size of the market.

The distribution model for podcasts could change as corporates look to cash in on a growth industry, with content made available via proprietary apps rather than openly available to the app of a user's choosing. One example of this is PRX, a leading creator and distributor of audio content, that is soon to launch RadioPublic:

*'Its first task is to build a mobile listening platform that makes listening to podcasts as simple as radio.'*⁴⁵

On the one hand new platforms will make the listening experience a lot easier, but consolidation and corporatisation may also see an end to the podcast as the free spirit of the audio medium.

'For larger podcasts this will be no problem, but more niche podcasts may suffer, centralising control with larger operators who can market their shows.'

– Matt Deegan, *Folder Media*

When it is possible to secure an advertising sale, the rates achievable for podcast content are currently high compared to other digital advertising, but as a wider range of content becomes available rates may decline due to increased competition.

As podcasting is fundamentally a democratic and disparate medium, there has been no central archive in existence. A decade of programming that documents the early beginnings of podcasting may have been lost to researchers of the future. Should the BL be interested in retrospective recovery, it could approach some of the major hosting services to see what their archive policies have been and what they may have stored.

6.7 Pirate radio

For many, pirate radio is an important part of the UK's cultural life. A fully-representative radio archive might want to consider how it might legally document this output.

While internet radio and the introduction of community broadcasting licences have taken away some of the incentive for pirates to broadcast, there is still a significant number of pirate stations broadcasting on FM. In 2015 it was revealed that Ofcom had raided nearly 400 suspected pirate radio stations in London over the previous two years.

⁴⁵ <https://blog.prx.org/2016/05/announcing-radiopublic>

Interestingly, pirate radio seems to be mostly a London phenomenon.

'There are about 70 active stations in the London area. In the whole of the UK we've got something like just over 100...From the enquiries we've carried out, this problem doesn't exist in New York or Rome or Paris - it's a London phenomenon.'

*– Clive Corrie, Head of Spectrum Enforcement, Ofcom*⁴⁶

Many pirate stations now stream online and are broadcast via the internet radio aggregator TuneIn. It is not clear how many pay their music licensing obligations.

⁴⁶ Ramzy Alwakeel, *Four hundred pirate radio setups shut down in London...* (3 July 2015) Evening Standard <http://www.standard.co.uk/news/london/four-hundred-pirate-radio-stations-shut-down-in-london-in-just-two-years-10362974.html>

7 Technology

7.1 Modular delivery

Modular delivery mechanisms provide the building blocks for new ways to deliver radio: more personalised, more interactive, more contextually relevant. The BL should note that modular delivery *could* see the demise of the linear radio channel but we believe this will not be for at least ten years.

As radio becomes more modular, it enables stations to offer personalised content to listeners dependent on their needs and interests.

The term BBC Research and Development (BBC R&D) use for its technology to support modular delivery is ‘object-based broadcasting’ (not to be confused with a similar term for binaural cinema audio). The central idea is that content assets (e.g. audio clips, video clips, images) are all just objects or blocks that make up the component parts of any programme.

‘It’s about moving the whole industry away from thinking of video and audio as hermetically sealed, and towards a place where we are no longer broadcasters but datacasters.’

– Matthew Postgate, Chief Technology and Product Officer, BBC⁴⁷

Imagine a component object as just one link in a radio show or a single feature. A broadcaster will be able to deliver all the components at once, which the user can then assemble in the order they want to listen to them according to their own preferences. This will support tailored programmes, where the listener might only want the news headlines and the film reviews but not the sports content.

Object-based broadcasting could also support a listener setting the duration of a programme using a slider control, so the same documentary feature could be heard over ten minutes or an hour depending on how much time the user has available.

Technology that facilitates object-based broadcasting will soon be moving out of research and development departments and into radio studios. Companies like Omny in Australia have added technology to radio studios that separates what is being broadcast into component parts (e.g. recording a clean feed of the speech without music).

Such tools mean a radio station can be recreated with entirely different music (like Absolute Radio’s breakfast show) or the speech can be delivered to an ad sales team as a reference source for its clients. But there are much more ambitious uses for object-based audio on the horizon.

BBC R&D and Broadcast Bionics are working together to build an internet-based studio of the future that will include multi-object recording, automated visualisation, automated transcription, and binaural audio. They are currently working with radio producers to road test the studio and see how this may change the content they are making.

There have not yet been any industry standards set around object-based broadcasting. These will

⁴⁷ Adrian Pennington, *Object-based broadcasting* (19 May 2016)
<http://adrianpenningtonthewritestuff.blogspot.co.uk/2016/05/object-based-broadcasting.html>

be important to ensure that supporting metadata will enable all content to be searchable and shareable and to ensure that object blocks are interchangeable.

The BL should keep abreast of developments in this area to ensure its radio archive is able to capture and give access to such content in the future.

7.2 Personalised audio

Personalisation is coming but it is hard to predict the extent to which it will impact on linear radio services. Expert opinion is divided. Some think personalisation spells the end of radio as we know it, others think the serendipitous nature of live radio will always have a part to play.

Once you have radio delivered as component objects which are embedded with accurate data about what they contain, you can then begin to build a personalised audio stream driven by explicit choices or implicit data.

Personalised radio can be more of a 'lean back' experience than an interactive one with the decisions on what listeners should hear inferred from data based on captured behaviour (e.g. a system may recognise a user's online behaviour and serve them content to match this). A user might be delivered a stream of content based on previous listens but also potentially on browsing history.

Another possibility is delivering content according to the expression on people's faces – automatically determining their mood and serving something that matches.

While some engineers feel object-based broadcasting may see the end of the linear radio channel not everyone thinks it will replace the human touch. The BBC believes one can't rely on algorithms to serve up the hidden gems listeners never knew they wanted. The personalised service myBBC will rely on a mixture of serendipitous discovery, curated content and algorithm driven discovery.

'There is both a curatorial role at the BBC and a more algorithmic role where we can use the data ... and the behaviours that this implies, to supplement and add to the way that we curate content. It would be wrong to assume that one or other of those will win out, both the art of curation and the science of algorithm need to blend together into one seamless experience so our listeners don't know whether it has come from a machine or an editorial curator.'

– Phil Fernley, Director of myBBC and BBC Homepage

7.3 **Interactive audio**

Interactive audio changes according to listener input – a consciously driven user experience, where the user guides what they hear by interacting with the content. This has the potential to fundamentally change the mode in which audio is consumed – more a ‘lean forward’ than a ‘lean back’ experience.

There is a growing number of interactive audio games (e.g. Papa Sangre, Zombies Run!) where the user can control the outcome of the audio according to their actions. Interactivity has recently made an appearance in radio too with products such as the My Capital Xtra and NPR One apps.

Interactive audio is generally mobile driven, a device on which people are already used to interacting and changing the content with which they are engaging. Expect to see more of these kind of products emerging.

7.4 **‘Contextually variable content’**

‘Contextually variable content’ is audio that varies depending on where and when you are listening – a specific application of the modular delivery mechanisms already mentioned. It is not yet clear at what point it will come into mainstream usage, but when it does it will be a challenge to add it to a national radio archive in a meaningful way.

An example would be the recording of a sporting event that changes the foreground and background audio balance depending on your hearing capacity, a national radio stream that provides you only local weather to wherever you are, or a news bulletin that perfectly fits the duration of time you have to listen.

In the US Uber recently announced an integration with Otto Radio, a commuter-oriented audio and podcast curation app, that will serve riders with a speech programming playlist that’s dynamically constructed to fit their trips.

‘The next time you request a ride using the Uber app, a playlist of news stories and podcasts, perfectly timed for your trip’s duration, will be waiting for you in Otto Radio. Once your driver has arrived, you can sit back and enjoy your “personally curated listening experience and arrive at your destination up-to-date about the things you care about most”.’⁴⁸

The BL should consider if it would be possible to archive usage data so researchers in the future can better understand how behaviours determined programming content decisions.

⁴⁸ Angela Moscaritolo, *Uber teams with Otto Radio to make your ride less boring* (11 October 2016) PCMag UK <http://uk.pcmag.com/software/85294/news/uber-teams-with-otto-radio-to-make-your-ride-less-boring>

7.5 Subscription-based audio

Subscription-based audio companies could be the next providers of intimate, companionable, speech-based audio content as they already have many of the tools required to deliver the modular content described in the previous sections.

The metadata created and stored by service-based audio providers could be of great interest to researchers in the context of the changing audio landscape.

The lists users compile within music streaming services like Spotify are already proving valuable to music promoters. Just as in music radio, streaming playlists are heavily influenced by the music industry because if a track appears on key lists it can become very popular.

If the likes of Pandora and Spotify move into more traditional radio content as well, as early indications show they may (e.g. including speech links), then such lists could become valuable data for the archive (e.g. ‘personal top ten radio shows’, ‘radio to listen to when you are driving’, ‘best news output’ etc). Just as the RAJAR data is useful for research, subscription-based audio data will reveal how radio shows became successful and why people listen to them.

7.6 Immersive audio

The BBC and others have conducted successful trials of 3D stereo sound using binaural recording, but while a national radio archive should include some of the high-end binaural productions we don’t see this as a major trend in radio broadcasting.

Binaural recording captures sound with the intent to create a 3D stereo sensation for the listener. This effect is often created using a technique known as ‘dummy head recording’ where a mannequin head is fitted with a microphone in each ear. Each microphone captures the variations that occur naturally as sound wraps around the human head and is ‘shaped’ by the form of the outer and inner ear.⁴⁹

The BBC has produced and released several examples of binaural recordings – further details are on the BBC R&D website.⁵⁰ Audible are currently exploring binaural audio dramas and the DAX advertising exchange offers binaural adverts to its clients.

The main obstacle to binaural reception is that most radio listeners are used to listening on low quality devices (e.g. through mono speakers) and don’t seem to care about spatialised sounds. In fact, many of the new entrant commercial stations on the national DAB network are broadcasting in low quality (64kbit/s mono).

‘Most people’s experience of radio is listening to poor quality audio. Most people don’t complain.’

– Michael Hill, Founder and MD, Radioplayer

⁴⁹ https://en.wikipedia.org/wiki/Binaural_recording

⁵⁰ <http://www.bbc.co.uk/rd/projects/binaural-broadcasting>

Binaural recording is also optimised for replay using headphones and will not translate properly over stereo speakers. As many people still listen to the radio in mono or in the car where the speakers are not optimally positioned, the binaural effects are not reproduced.

The approach is unlikely to become a mainstream production technique, and especially while we continue to listen to the radio in cars and kitchens.

7.7 Speech to text

It is only recently that broadcasters have begun using speech to text software. There could be some collaboration opportunities for the BL.

'Radio is just a spoken document, once we can access that document, radio could be a part of the tapestry of the internet.'

– Dan McQuillin, *Broadcast Bionics*

Broadcast Bionics and the BBC have been building automated transcription into broadcast radio studios. Among other things, this allows producers to extract the audio and video quickly, add automated captions and share the content socially just after it has been aired.

Global is about to integrate speech to text software into its LBC and Radio X studios, and the audio hosting platform Mixcloud uses speech to text to help in podcast discovery.

The BBC is also using speech-to-text software on BBC Rewind, its project that aims to liberate parts of the BBC archive for regular use online. Using speech to text tools to transcribe the BBC's news output will facilitate it being linked to and be searchable by users.

There may be opportunities for future partnerships between the BL and the providers listed here to share the burden of processing national radio archive content.

7.8 Voice recognition

While not directly connected to radio output, it will be important for the BL to monitor the development of voice assistants like Amazon's Alexa and Apple's Siri.

Technologies that listen are becoming more mainstream, aiming to speed up search by freeing up users' hands. We anticipate these products being great tools for audio language learning and instructional audio content but it is hard to predict what else creative audio producers may develop for these products.

As voice recognition software improves, so will the capability of voice activated software. However, there is likely to be some cultural resistance to people talking to technology.

8 Researcher needs

8.1 Researcher types

In an ideal world a national radio archive would be used by researchers who are not simply interested in radio itself but are able to make use of the rich content and data contained within a selection of audio broadcasts.

The types of researchers we anticipate using a national radio archive are:

a) Radio

Those who study the cultures, practices and histories of radio stations and the people who make radio within them. Interests would include collections relating to the sound of new and established migrant communities for studies of how different ethnic communities use radio, to explore integration, and to consider how and where mother tongue languages are maintained.

b) Media more widely

Will be interested in how media was consumed in relation to all other media, the choices a listener made, as well as the actual content they listened to. Media researchers study the flow and sequence of material, ephemera (e.g. adverts, continuity) and audience data.

c) Content

Those who study individual subjects looking for further information or research materials to help them on specific topics. They are more likely to be interested in individual programmes, segments within the programmes or people who appear on the programmes.

d) Data

Some researchers will be interested in the large data sets that a radio archive could offer. For example, those looking at semantic analysis, emotional tagging and social behaviours would find an archive of LBC interviews a useful resource.

e) Other

An accessible, discoverable archive could be a useful tool to many other professions and amateur enthusiasts. For example, radio journalists and producers will find it useful if they can access material quickly and, subject to copyright and licensing requirements, be able to reuse in programmes or segments.

8.2 Access requirements

A key factor for the success of a national radio archive will be accessibility, both in terms of how and where the system can be accessed as well as how easy it is to use the interface. Many archive projects have failed because potential users cannot get to them or if they can they do not understand how to operate them.

One way to ensure the archive meets user needs would be to use external expertise to test prototypes and potentially even build prototype interfaces.

'Get a PhD student to play around with it. Produce something that appeals to the media which tests how it is used creatively. This helps improve the interface with the public.'

– David Hendy, *Media Historian and Broadcaster*

To make the archive wholly useful for academics and the wider public, the system needs to have a simple user interface and be accessible to the regular, non-technical user. The content needs to be searchable and immediately accessible with simple editing features like those used on BBC Snippets (a suite of search tools built around the BBC Redux audio and video archive).⁵¹

Without some form of annotation being made available, researchers must listen to archive audio in real time to determine what it is about. This takes time – far longer than reviewing text – and means audio is often overlooked as a research medium.

'Time is key to academics.'

– David Hendy, *Media Historian and Broadcaster*

A national radio archive could dramatically speed up research by offering transcriptions, key topics and personalities for each programme. The interface should offer text and audio in parallel, making it easy to search and jump to the correct piece of audio straight away. Commercial tools like Trint (an automatic transcription service) already offer this capability.⁵²

Promotion will also be essential, via mailing lists, targeting conferences, flyers to departments, and through press-worthy prototypes.

8.3 Reuse

To support reuse it will be useful to have clear copyright details attached to each piece of content indicating when and where it is possible for data or content to be shared.

During a recent workshop we held at the BL, it was mentioned that many researchers looking at audio content want to reuse that content elsewhere, either in productions or in their own research off site.

Today people are used to being able to access and rip content as they see fit. The BL will need to be careful to ensure copyright is clearly stated. With music, copyright holders have become efficient at taking down unauthorised uses of their content. While the radio industry is not as active in hunting down copies of programmes, technology will make this easier. The BL will not want to be in a position where it has aided copyright infringement.

⁵¹ <http://www.bbc.co.uk/rd/projects/snippets>

⁵² <https://www.trint.com>

One option would be to permit registered users to clip, edit, manipulate, mix, and process within the web interface (like BBC Snippets), the content remaining in the secure network space. Reuse of this derived content is then subject to the same conditions as the source material (i.e. download if you have the rights, or stream if you don't).

The growth of music services that are always available, such as Spotify, reduce the need for people have music copies of their own. Many services like SoundCloud offer embeddable players to make it possible to embed a hosted song in another page. This is something the BL could aspire to replicate for radio, copyright permitting.

We recognise that any solution enabling reuse would not be without complications or costs.

8.4 Topic mapping

The more that items of content can be linked to each other, the more useful they become to researchers across all disciplines. Linking radio to other media via the BL's Universal Player will give radio more prominence as a research medium.

The ideal scenario is a combined BL archive that uses Linked Open Data⁵³ to connect content with all other BL sources, and external sources, by using a broad ontology. Both media researchers and content researchers will benefit from automated topic extraction, speaker recognition, time stamped audio and transcripts that enable them to locate audio quickly.

This brings us to the fundamental question of why the BL would want to create an archive of UK radio output. Only by making the content searchable, easily accessible, and linked to other media will anyone benefit from the true value of the archive. This is where the ground-breaking work will need to happen as it could fundamentally change the way researchers will use radio in their working lives.

As an example, it is clear how transformative optical character recognition (OCR) has been to research using newspapers. The mass newspaper digitisation projects the BL has done in conjunction with commercial partner Findmypast have led to a much wider and more detailed range of research being possible.

Most Findmypast subscribers use local/regional newspaper content for genealogical research to discover details of the day-to-day lives of ordinary people whose histories would never be considered newsworthy by the national press. The fact a commercial business is running off the back of newspaper digitisation indicates the success of this approach.

Just as OCR has opened up the newspaper archives, speech-to-text could open up audiovisual archives to a vast range of new enquiries and research methodologies. There is however, a substantial cost involved in this work and one that might be best delayed until the costs decrease which they will do as processing and storage costs reduce.

⁵³ https://en.wikipedia.org/wiki/Linked_data#Linked_open_data

Making speech radio searchable by text will permit subject research in the broadcast medium that would otherwise be near impossible. The detailed events of current affairs radio are not detailed in published sources or even in current electronic programme guide data.

For example, if you look at LBC's published schedules today you'll find little more than the name of the presenter and a generic tagline such as 'Iain Dale is Leading Britain's Conversation'. Checking Iain Dale's Facebook page, or the similarly vague summary from the station's podcast page, might add a key topic, but nothing will give you the detail of the programme's subject matter or contributors.

You have no way of knowing that the former Head of MI6, John Sawers, was interviewed on 12 October 2016 about the new 'cold war', that motorway hard shoulders were discussed by Nick Ferrari on 29 September or that taser deaths were discussed by Shelagh Fogarty on 16 August.

8.5 Content (that researchers might want)

Our workshops with the BL highlighted that researchers have an extremely diverse range of interests and needs. A national radio archive should include as wide a range of sources and programming as possible.

The BL cannot determine history. The margins may be as historically important as the mainstream. Many amateur podcasts may end up being of value to a researcher in the future, just as home cine film is interesting to film archivists now because it shows a snapshot of history not seen through mainstream media.

Ideally a national radio archive would regularly capture a selection of the diverse community radio output. ... Discrete collections need support – Sound Women podcasts for example demonstrate and represent how one group was intervening in equal opportunities discourses over a particular period.'

– Dr Caroline Mitchell

There are many ways that users might use content from the archive.

A PhD researcher interested in how Punjabi-accented English language has changed might want to sample programmes from radio stations targeted at this community over the last ten years.

Alternatively, academics interested in quantitative surveying of output for gender representation might be interested in using language tools to survey representative output across BBC, commercial and community radio sectors.

In 2014, the BBC, BUFVC (now known as Learning on Screen) and JISC investigated the need by academics for online access to pre-1989 BBC archive materials. Some of their findings provide useful insights to how researchers might use a national radio archive. Their report stated:

'A wide variety of audiovisual material is currently being used for both teaching and research, but academics are limited to materials that are both available and searchable. ...

'Priority areas include for radio, a wide range of factual programming, from current affairs and magazine programmes to quiz shows. While the majority of specific requests were for broadcast programmes, related materials such as scripts and documentation were also in great demand.

The main reasons for fuller use not currently being made of archive materials to add value to teaching and research are:

- *Access to audiovisual items is limited in terms of what is available, either online or on commercial formats*
- *Researchers and educators are often not aware of which items actually exist in the BBC Archive. Discoverability is therefore arguably as significant a barrier to use as accessibility*
- *Cost of rights clearance is currently a significant impediment to online availability (in particular performers' rights in drama and comedy programming)⁵⁴*

The report drew the following conclusion:

The academic community is already making varied use of whatever materials are available and discoverable; improving these is therefore desirable to enrich teaching and research. Awareness of existing online collections could be raised by making them available via a single, searchable portal.⁵⁵

8.6 Data

Radio Joint Audience Research (RAJAR) measures and profiles the audiences of UK radio stations. It would be useful for a national radio archive to capture this data. RAJAR may be willing to make the data available for non-commercial use, potentially with a delay to when it is made available to archive users (e.g. five years).

It would be beneficial for the archive to include as much data as possible around the audio from RAJAR and other sources. The data around listening habits is significant to future researchers from a mass observation perspective.

RAJAR has been collecting listening data since 1992 and this has been put online since 1999. The details RAJAR collects that it doesn't make available to the public could be valuable to researchers in the future.

A non-broadcaster can subscribe to the data for £2,269/year providing access to individual station data.⁵⁶ But drilling down to a lower level requires a tool from an approved RAJAR agency (e.g. Telmar or Mediatel), which could cost up to £30,000 per year depending on the type of subscription taken out.

⁵⁴ BBC / BUFVC / JISC, *Academic requirements for pre-1989 BBC archive content* (3 December 2014) <http://repository.jisc.ac.uk/5659>

⁵⁵ BBC / BUFVC / JISC, *ibid*

⁵⁶ http://www.rajar.co.uk/content.php?page=how_to_subscribe_non-broadcaster

9 Legal considerations

9.1 On-demand and original streamed content

Legislation provides a framework for the BL to capture UK radio broadcasts off air and on-demand content only if hosted on a UK server or domain. Further on-demand and streamed content will only be available via voluntary arrangements.

Key pieces of legislation relevant to a national radio archive are:

- Legal Deposit Libraries Act 2003
- The Legal Deposit Libraries (Non-Print Works) Regulations 2013
- Copyright, Designs and Patents Act 1988 (CDPA)

Currently the BL acquires radio content through voluntary arrangements (donations) or recording under copyright exception. Section 75 of the CDPA states: ‘A recording of a broadcast or a copy of such a recording may be made for the purpose of being placed in an archive maintained by a body which is not established or conducted for profit without infringing any copyright in the broadcast or in any work included in it.’⁵⁷

The Legal Deposit Libraries Act 2003 and The Legal Deposit Libraries (Non-Print Works) Regulations 2013 (which deals specifically with digital and other media, including sound recordings and films) appear to exclude sound recordings, although the regulations do apply to a work that includes audio-visual material as a feature within the main body of work rather than as its main purpose.⁵⁸

The fact that sound recordings are specifically mentioned in the legislation as not falling under the legal deposit regime means audio was well within the contemplation of the legislators. This makes it much harder to argue that sound recordings should fall outside of the legislation.

The BL’s web archive team has suggested that the BL (along with the other Legal Deposit Libraries) can now archive some on-demand content such as podcasts and other audio files selectively under the Non Print Legal Deposit legislation (i.e. web archiving). However, libraries are not permitted to collect websites whose primary purpose is to make available sound recordings (and film) such as YouTube.

Under the Non-Print Legal Deposit regulations, the UK can capture and archive any ‘in scope’ digitally published material which includes websites. To be ‘in scope’ a website needs to have a UK registered postal address and either be on a UK domain (.uk, .scot, .wales, .cymru or .london) or be on a server geographically within the UK or Northern Ireland.

⁵⁷ <http://www.legislation.gov.uk/ukxi/2014/1372/regulation/8/made>

⁵⁸ <http://www.bl.uk/aboutus/legaldeposit/websites/faq/recordedsoundfilm>

However, if UK podcasters are using a service such as Acast, Libsyn or SoundCloud to host their programmes and those servers are based internationally, this would mean content could not be captured, so this may not be a way to comprehensively capture UK podcasts.

As an example, the servers of hosting service Audioboom are based in both the UK and abroad, which makes archiving them via the web archive more complex.

It is worth noting that the web archive only captures publicly available material, therefore nothing private or behind a log in. It cannot capture any streamed content such as live internet radio (though such recordings qualify as live broadcasts under copyright legislation where they are transmitted simultaneously with the over-the-air broadcast).

The Legal Deposit legislation is being reviewed in 2018 and one suggestion might be to lobby for the regulations to include sound and film that are not incidental. However Legal Deposit has other implications beyond the BL's right to collect and can be a double-edged sword conferring expensive obligations. For example, some restrictions are placed on the use of legal deposit content which are not applied to content acquired in other ways – republishing of legal deposit content is often prohibited, so it could potentially impact on the BL's ability to then put it online.

One could also argue the BL is performing an act of public good by capturing materials it doesn't yet have the rights to make available via public access. It could be argued that the BL should be allowed to do this, so as not to risk losing material either to non-trusted or hard-to-identify third parties, or simply lost altogether.

The bigger problem is access. It is harder to enforce the capture of certain materials/media/works if they are not then on some kind of publicly accessible platform. But as soon as they become publicly accessible this opens up a swathe of copyright issues.

The dilemma is that if the BL isn't capturing the on-demand content because the legislation says it can't, then who is? Many of the cheaper podcast servers only hold three episodes at a time, so are being lost quickly. If someone else is capturing podcasts do they have the 'good actor' status of the BL, with all the checks and balances in place that the BL has?

In addition to concerns around the BL's ability to capture and/or provide access to archive material falling outside of Legal Deposit, care must be taken to ensure that any materials which are archived are done so in accordance with obligations under copyright and, potentially, other rights.

Where material is made up of broadcasters' own created works (e.g. talk radio) then rights may be cleared directly from the broadcasters themselves. When third party material is involved, for instance music or syndicated news content, additional permissions may be required.

9.2 Personal content data capture

Data protection laws are being tightened and fines are being increased. The approach to the handling of personal data within a national radio archive is something that will need to be explored.

Privacy raises issues for any archive as people now, under certain circumstances, have the right to be forgotten and to change their mind about the things they have said. It is possible that people will say all sorts of things on a podcast or radio show that in 20 years time they may regret and want retracted.

One could argue the BL has an obligation to maintain factually and historically accurate records of what people said. To have to respond to claims from the public to remove certain embarrassing or otherwise unfavourable statements they might have made *only* because they're embarrassing (but are not false) would be unworkable and potentially objectionable on other grounds.

However, while an overload of requests from the public would be unworkable there will need to be clearly stated policies, or an exemption from legislation, as the potential penalties are high. The EU General Data Protection Regulation (being applied from 25 May 2018) gives rise to increased compliance requirements backed by heavy financial penalties – up to €20m or 4% of annual worldwide turnover for groups of companies, whichever is greater.⁵⁹

⁵⁹ Warwick Ashford, *EU data protection rules affect everyone...* (11 Jan 2016) Computer Weekly <http://www.computerweekly.com/news/4500270456/EU-data-protection-rules-affect-everyone-say-legal-experts>

Appendix 1 – Ofcom definitions

Ofcom use the following definitions to describe radio:

Abbreviation used	Activity
Live Radio	Radio (at the time of broadcast) <i>We note this could include speech and/or music programming, and may be received in ways other than via a radio receiver (e.g. via digital set-top box)</i>
On-Demand Radio	On-demand (e.g. listen again) radio programmes or podcasts
Personal Digital Audio	Personal digital music or audio collections (e.g. on computer, iPod, smartphone etc)
Streamed Music	Streamed online music (e.g. Amazon Music, Apple Music, Google Play, Spotify)
CD/Vinyl	Personal music collections on CD, record or tape
Music videos	Music video channels or sites mainly used for background listening

In addition to the terms used in Ofcom reports we use the following terms in the following ways:

(Live) Internet Radio	Live internet streaming of content not being broadcast over the air (e.g. Apple Music Beats 1)
Audio	Audio as a whole includes all the categories of listening described above

Appendix 2 – Interviewees

We are grateful for the advice provided by the experts we spoke with:

Steve Ackerman	Managing Director, Somethin' Else
Femi Adeyemi	Founder, NTS
Ruth Barnes	Founder, Chalk and Blade
Paul Bennun	Entertainment technology consultant
Richard Berry	Senior Lecturer in Radio, Sunderland University
Helen Boaden	Director of Radio, BBC
Chris Burns	Chair, Radio Academy / Chief Operating Officer, BBC Design and Engineering
Camilla Byk	Founder, Podium.me
Tony Churnside	Head of Technology, Magnetic North
James Cridland	Radio Futurologist
Phil Critchlow	Founder, TBI Media
Trevor Dann	Creative Director, Trevor Dann's Company
Matt Deegan	Founder, Folder Media / Next Radio
Ryan Dilley	Producer, BBC Radio 4 / Panoply
Pete Donaldson	Presenter, Absolute Radio / Football Ramble
Phil Fearnley	Director of myBBC and BBC Homepage
Lyndsay Ferrigan	Communications Manager, RAJAR
Ruth Fitzsimons	Global Head of Content, Audioboom
Will Harding	Group Strategy & Development Director, Global Radio
David Hendy	Professor of Media and Cultural History, University of Sussex
Michael Hill	Founder and MD, Radioplayer
Will Jackson	VP Corporate Strategy & International Development, Pandora
Will Jackson	Managing Director, Radio Independents Group
Dan McQuillin	Managing Director, Broadcast Bionics

Dr Caroline Mitchell	Senior Lecturer in Radio, University of Sunderland / Advisor, Community Media Association
Sean O’Halpin	Lead Developer, EBU / Lead Engineer, BBC R&D
Charlie Phillips	Head of Legal and Commercial Affairs, Association of Independent Music / Worldwide Independent Network
Jason Phipps	Head of Audio, The Guardian
Caroline Raphael	Founder, Dora Productions
Ali Rezakhani	Director, Radio Reverb
Phil Riley	Founder and Chairman, Orion Media
Miranda Sawyer	Podcast and radio reviewer, The Observer
Julie Shapiro	Executive Producer, Radiotopia
Chris Skinner	Executive Producer, Absolute Radio / The Bugle
Mark Strippel	Head of Programmes, BBC Asian Network
Jonathan Wall	Controller, BBC Radio 5 Live
Benjamin White	Head of Intellectual Property, British Library
Alison Winter	Head of Audiences, BBC Radio and Music
Helen Zaltzman	Presenter, The Allusionist / Answer Me This