

Mediatique

Future audio consumption in the UK

A report for Arqiva, Bauer Radio, the BBC and Global Radio

1st October 2019

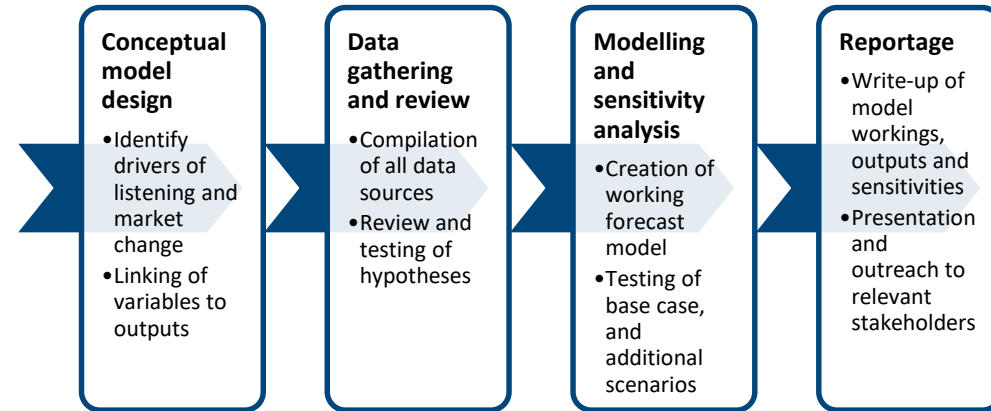
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- Appendix: the role of DAB in driving listening outcomes

We have provided a detailed forecast of audio consumption to 2035 in the UK

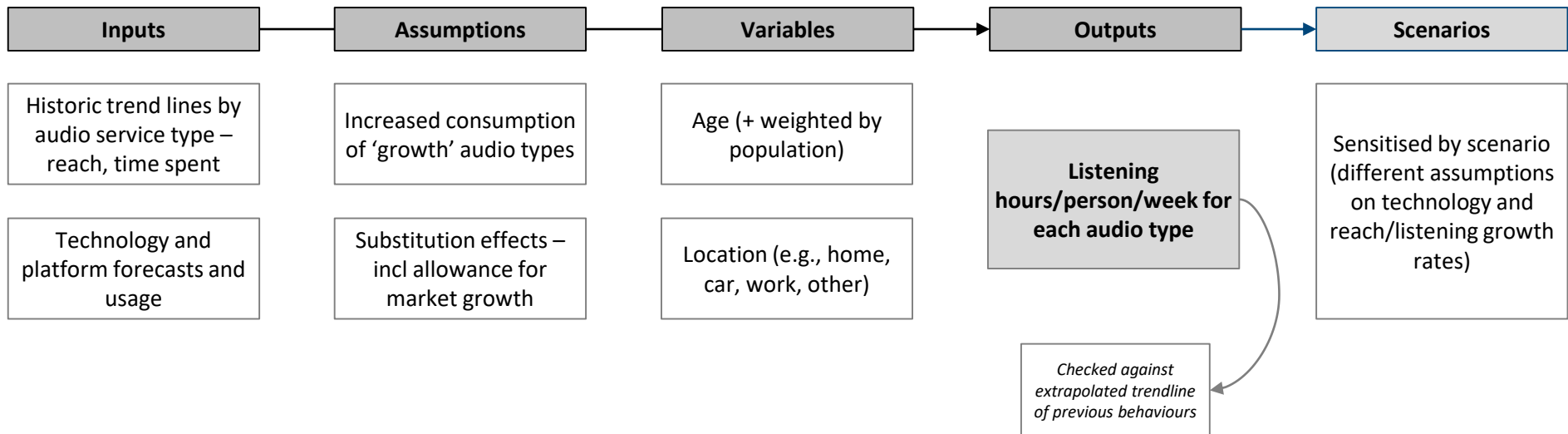
- Mediatique was commissioned by a working group of Arqiva, Bauer Media, the BBC and Global Radio to provide a forecast of audio listening in the UK to 2035
- The scope of our work was two-fold:
 - To understand how UK audio listening will evolve until 2035 without major regulatory or industry intervention; and
 - To understand the drivers of changing listening behaviours and identify interventions which will have the greatest impact on listener usage
- Our analysis was structured in four parts, as detailed opposite and rooted in an evidence-based model of listening behaviour by age group, platform and other variables
- The forecasts in this report are those of Mediatique and should not be inferred to represent the views of the commissioning clients

Audio project framework



Our central forecast estimates viewing by service type and listener age, driven by assumptions on reach, time spent and substitution effects

- We have forecast listening time for different audio service types (radio, streaming, podcasts, video clips, physical), informed by historic trendlines and assumed relationships between connectivity and consumer behaviour
- Our main assumptions include future growth rates in reach and listening time for those services likely to grow over time (streaming, catch-up radio, podcasts, online music video clips), by age group. We also assumed substitution rates for other service types such that increased time streaming (for example) would substitute for time spent listening to CDs and radio
- Our growth rates were informed by estimates of take-up and use of various devices and technologies, including growth in smart speakers and connected cars
- An assessment of the commercial and public policy implications of our analysis is outside scope



Core components of the audio consumption model (1)

Growth audio types

- Our model starts with forecasts of the main 'growth' audio types – we have identified these as:
 - On-demand music streaming services (paid and free)
 - Podcasts
 - Catch-up radio
 - Online music video clips (mainly on YouTube)
- The forecasts for these audio types are grounded in MIDAS data and informed by a wide range of evidence

Devices and consumer behaviour

- Devices enable new ways of listening to audio...
 - Widespread use of 'closed' devices such as DAB radio sets would be preferable (for the radio industry) to mass adoption and use of 'open' devices such as smartphones, tablets and smart speakers
 - These devices provide access to a wide range of audio types, most of which encroach on existing audio listening time
 - ...but on their own they don't determine changes in audio consumption
 - For example, while smartphone ownership among 15-24s is only 1.8x higher than the 55+ age group, weekly use (reach) of smartphones for audio listening is 4.6x higher (MIDAS Q1 2019)
- Our scenarios look at changes in consumer behaviour over time – these are often enabled or accelerated by changes in device ownership, but the two are not linked in a 1:1 relationship

Core components of the audio consumption model (2)

Listening locations

- Rather than linking changes in consumer listening behaviours directly to device ownership, we look at how audio consumption is likely to change in each of the MIDAS-tracked locations (home, car/van/lorry, work/place of study, public transport/walking, elsewhere), and the role that connected devices play in altering behaviours in each location – e.g. smart speakers in the home, connected cars, smartphones in all locations
- This approach also allows us to identify the locations in which radio is most vulnerable and where it has the most protection

Substitution

- In the absence of clear evidence that the total audio market has been growing or shrinking, we assume that each new listening hour gained by the ‘growth’ audio types will replace an existing hour listening time (this existing hour can include other growth audio types – e.g. streaming and podcasting can substitute for each other, giving a net growth outcome for each)
 - There may be opportunities for growth in audio time – such as smartphones providing more listening opportunities throughout the day
 - But there are also countervailing arguments – Netflix, YouTube, gaming etc. may increase competition for attention on smartphones
- Certain audio types may be particularly susceptible or resistant to substitution in one or more locations, thanks to their features and/or market share
 - In some locations, such as public transport or walking, music streaming and podcasting do little to harm radio overall since radio has a small share of listening in those locations (they instead take share from the more established media in those locations, such as iTunes downloads and ripped CDs)
 - Radio is under greater threat in the in home and in the car, where there is considerable scope for internet-delivered audio to take share from radio as well as CDs and digital downloads...
 - ...but radio listening in the car may be more protected than in the home, thanks to features such as popularity of the content (drivetime shows, news, traffic info) and ease/safety of operation
- There is also scope for some audio types to become more of a threat to others over time – e.g. streaming services may become more successful at targeting ‘passive’ radio listening

Our work has been informed by a number of sources and benchmarks, and tested against the views of industry stakeholders

Sources of data and evidence

- RAJAR and MIDAS data/trendlines
 - Listening by service type
 - Listening by age group
 - Listening by device ownership
 - Listening by location
- Ofcom, Tech Tracker, Digital Day
- Third-party reports
 - Edison's Infinite Dial, BPI, NPR, RIAA, Nielsen, Radiocentre, investment research
 - Including evidence on smart speakers and DAB growth rates
- Data from consortium parties on a non-disclosable basis
- Engagement with DCMS and Ofcom
- Engagement with manufacturers and retailers

Caveats

- RAJAR data goes back to 1999; but for non-radio audio types, MIDAS provides only three years of consumption data; this creates some uncertainty in applying past behaviours to generating reliable future trendlines
- We have to use precedent, evidence and judgement to develop realistic growth rates and ceilings for non-radio service types
- To do so, we have also considered other examples and benchmarks includes SVOD streaming (e.g., Netflix and SVOD penetration and usage rates in international markets), and evidence of usage/take-up of audio streaming and podcasts in other international markets

- Scope of work, methodology and sources
- **Market context and evidence – historic and current trends**
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- Appendix: the role of DAB in driving listening outcomes

The current state of audio listening is influenced by the interplay of three key drivers of change...

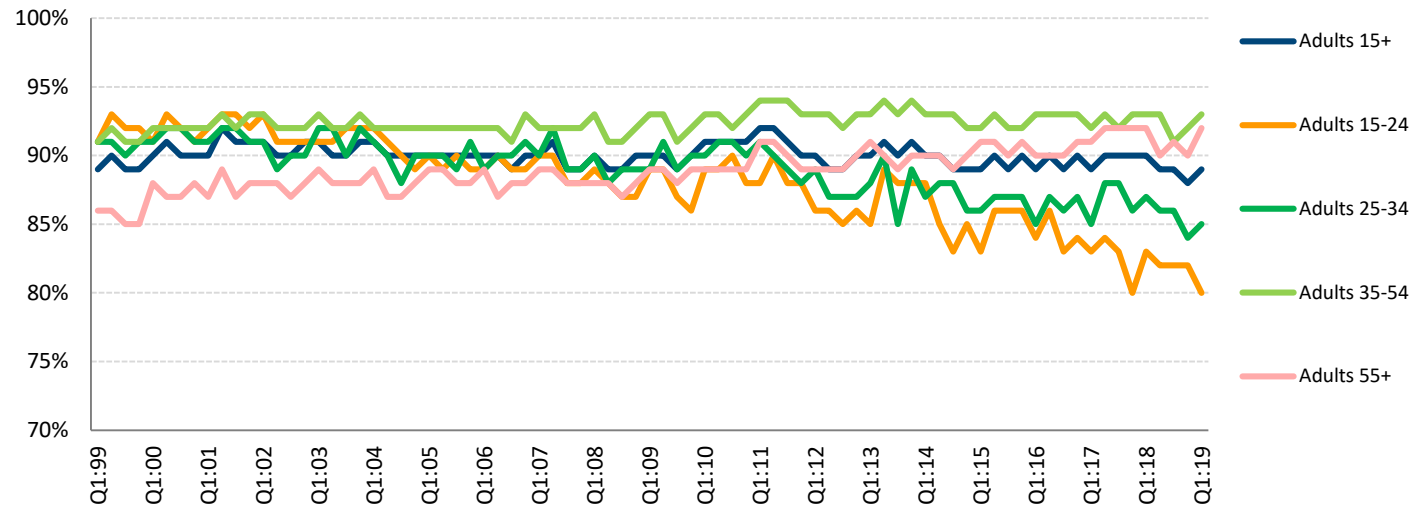
Dynamics and impacts of key drivers

Driver of change	Dynamics relevant to audio listening	Determinants of future listening
Technology	<ul style="list-style-type: none"> ▪ Increasing connectivity and device take-up (smartphones, tablets and smart speakers) have enabled audiences to access music and other audio in new and more flexible ways ▪ Tech has also enabled significant market entry; leading to significant plurality in audio services (both as to proposition and business/revenue model) and generating new means of search, navigation, curation and personalisation 	<ul style="list-style-type: none"> ▪ Penetration and use of selected devices and technologies: internet (fixed/mobile), connected/smart devices, car technology* ▪ Additional opportunities to listen (anytime, anywhere audio) ▪ Access to multiple competing services
Audience behaviours	<ul style="list-style-type: none"> ▪ Audiences are now able to access music and other audio through multiple routes to market, and audiences have embraced greater control over their audio consumption ▪ Younger listeners have a greater mixed economy of listening types and services, largely at the expense of radio ▪ Listening behaviours are still influenced by habit and routine, however 	<ul style="list-style-type: none"> ▪ Attitudes towards curation, shared experiences, choice, control ▪ Habit, routine, lifestyle choices; time spent in/out of home ▪ Other claims on leisure time ▪ An ageing population
Competition and service provision	<ul style="list-style-type: none"> ▪ Radio services – public service, commercial and community – now compete directly with a range of audio services (e.g., streaming and podcasting), including the likes of Spotify, Apple, TIDAL, Deezer, Amazon, Google and Soundcloud ▪ The quality, functionality and price of competing services will determine the relative attractiveness of audio service types 	<ul style="list-style-type: none"> ▪ Choice and quality of audio propositions ▪ ...more stations, tracks, playlists ▪ ...more functionality (search, recommendations)

** As part of our analysis, we also considered the extent to which increasing DAB penetration was likely to mitigate declines in total radio listenership. See appendix for more details*

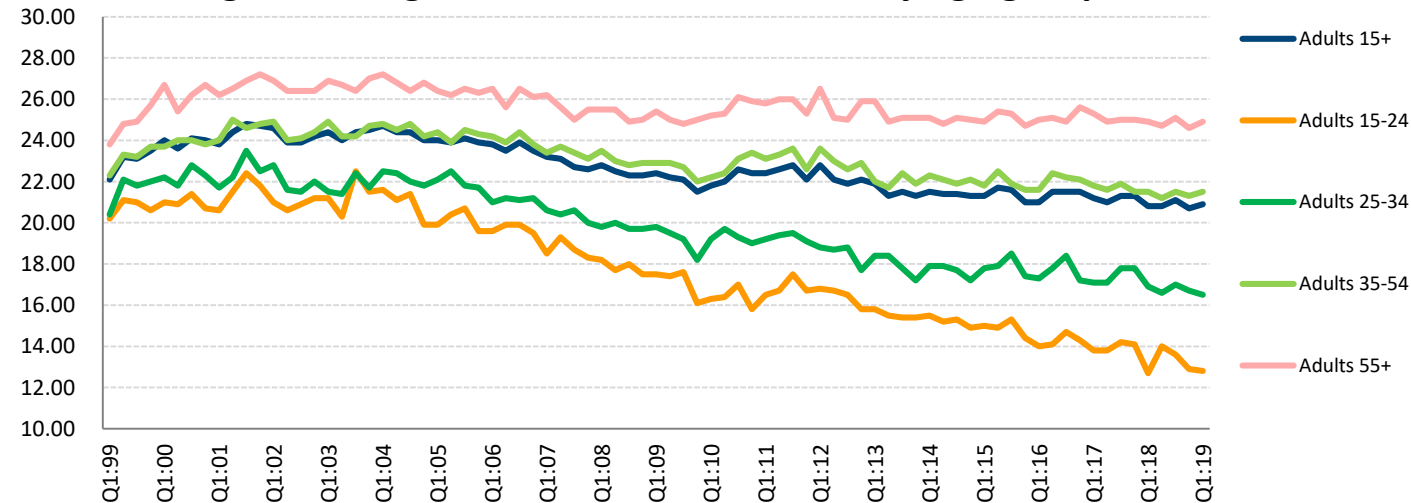
A 20-year period confirms that robust radio listenership has recently begun to lose both reach and listening, especially among younger age groups

Radio reach: 1999-2018, by age group



- Radio reach remains at close to 90% for all adults
- But recent periods have seen a significant decline in reach among younger listeners – largely the result of technology and changes to behaviours and preferences

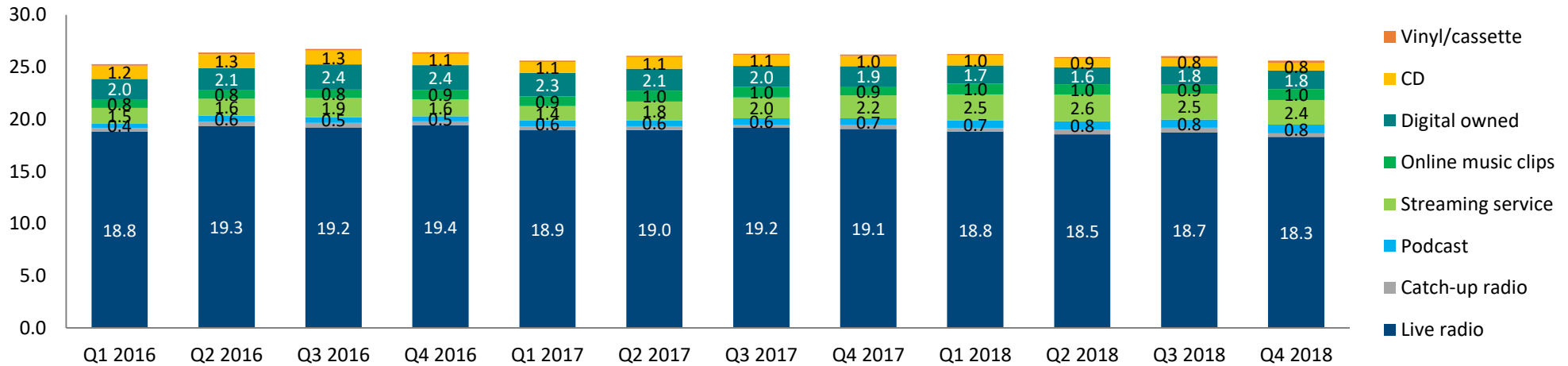
Radio average listening hours/week: 1999-2018, by age group



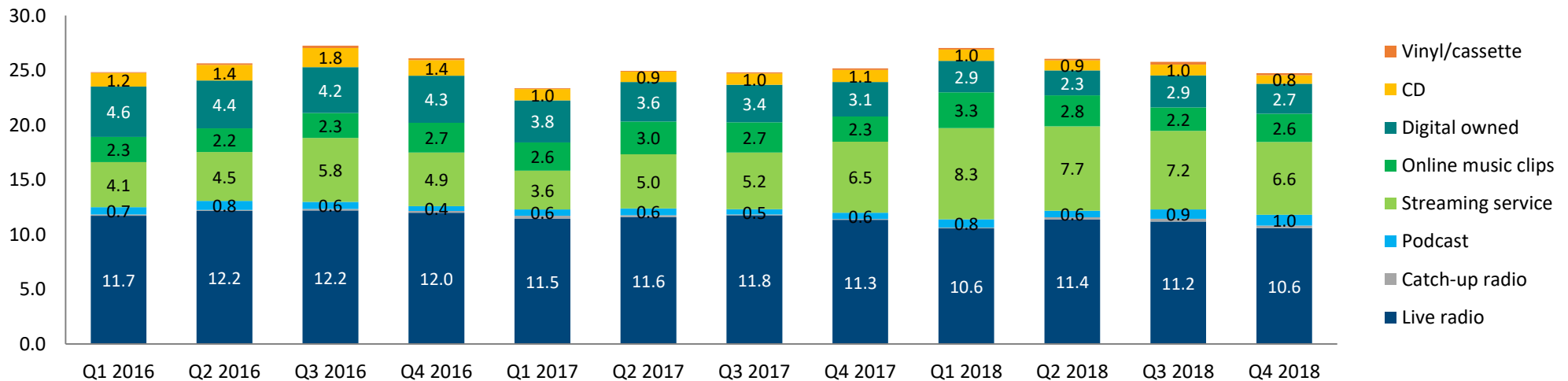
- Time spent listening to radio has been subject to the same impacts from technology and choice of non-radio services
- ...this is particularly true among younger age groups

Radio is losing share of audio to other forms of listening, and this is most acute among younger listeners...

Total audio listening – hours/person/week (Adults 15+)

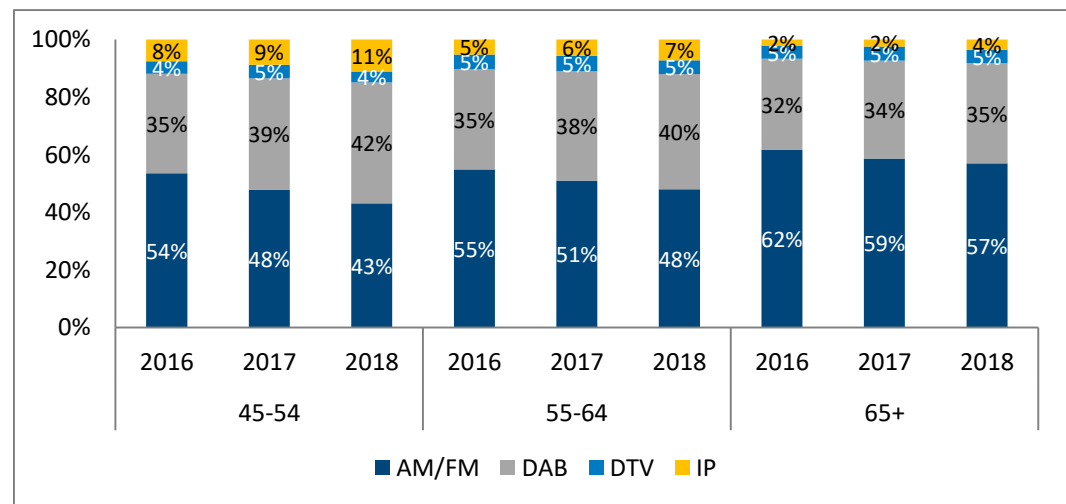
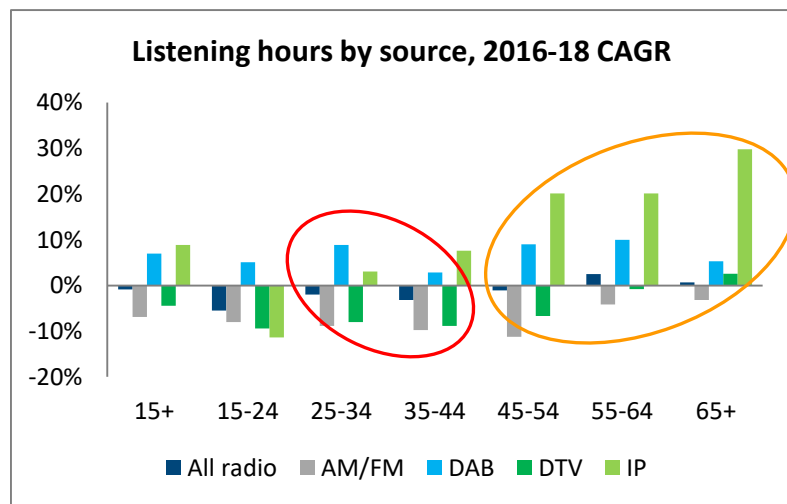
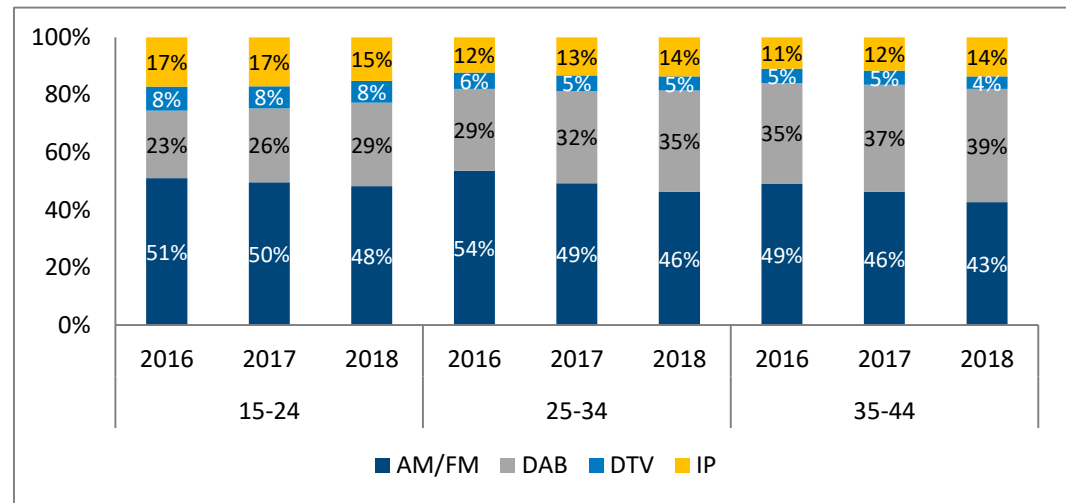
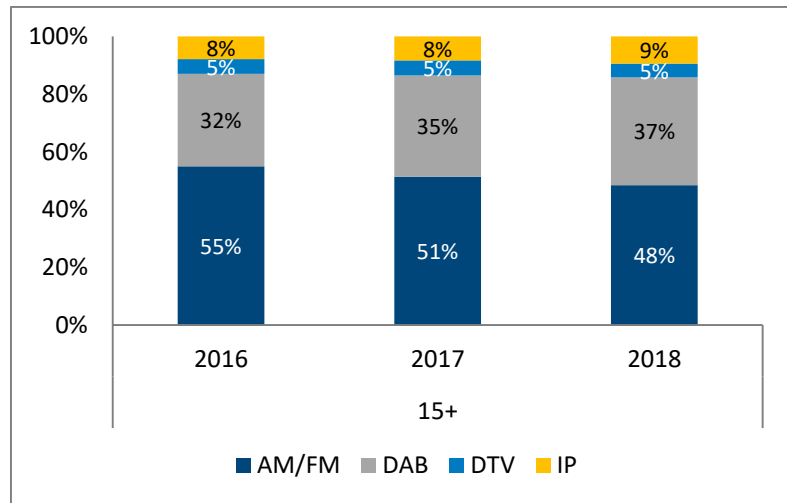


Total audio listening – hours/person/week (Adults 15-24)



There is an increasing mixed economy in the delivery of radio, with growth in IP listening (albeit from a very low base) and migration from AM/FM to DAB

Live radio listening – split by source

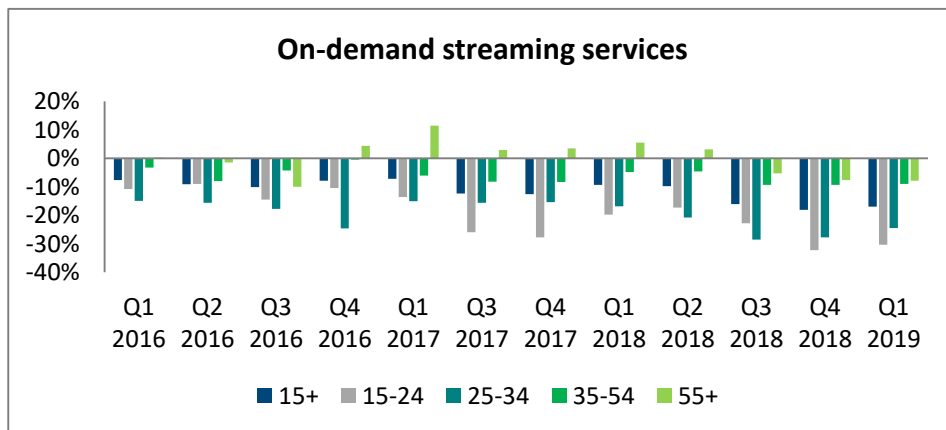
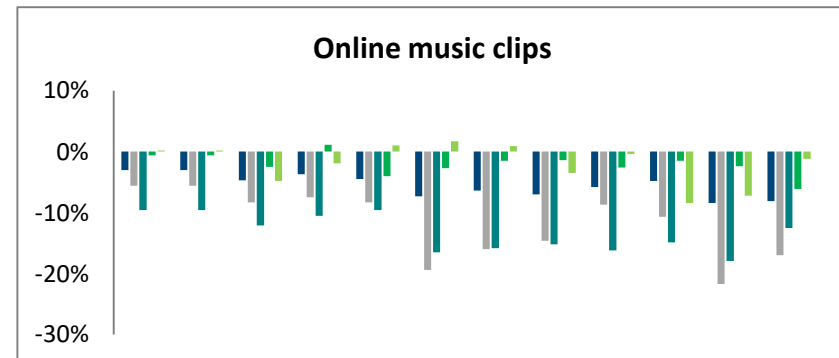
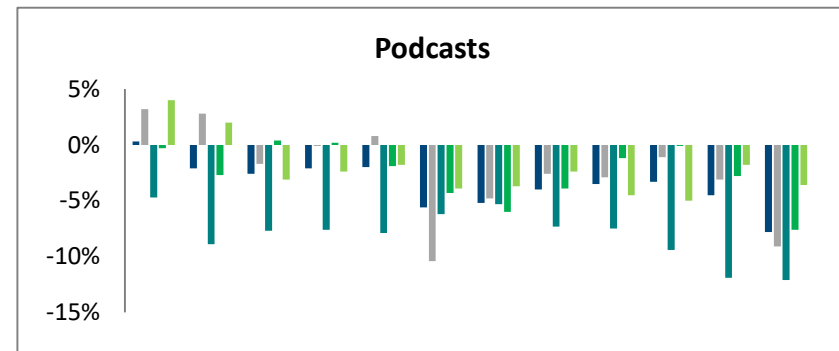
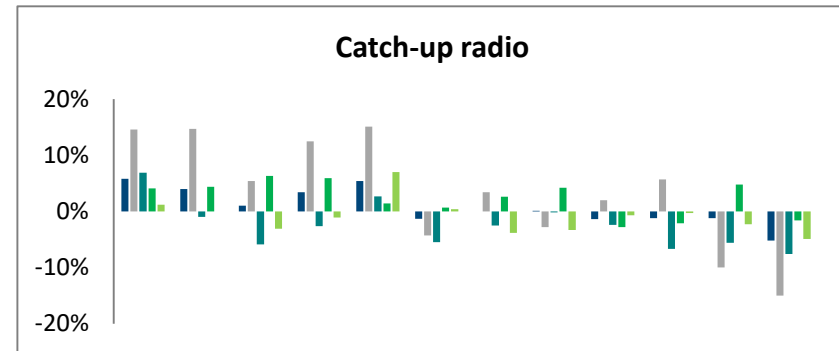


Source: RAJAR

MIDAS data (of claimed behaviour) confirms that there are substitution effects among different service types, with streaming and online music taking share from radio

“Since you started using [x], how would you say your live radio listening habits changed?” (MIDAS)

- These charts show respondents' net response: +% = more live radio listening, -% = less live radio listening
- Self-perceptions are not always reflected in the data, but often they do filter down over time...
- Over 35s do not currently use these services in large numbers, so although their responses to the survey questions are net negative, live radio listening is fairly stable among these age-groups (for now)
- Together, these answers and the listening data lend some support to the hypothesis that actual consumption per person of a 'new' service lags take-up: many people continue to maintain some of their existing listening habits for a while after (e.g.) signing up to Spotify, before switching more/all of their consumption to these newer services over time



The strategies of major players in the audio industry are pushing (and pulling) consumers towards greater online and on-demand listening

Corporate strategies – How strongly does live radio feature? How will it fare as other services take aim?



- ‘Music. Radio. Podcasts.’



- Key aim to increase reach and engagement
- Audio-first strategy: podcast acquisitions, curated playlists to capture passive ‘radio-style’ listening, free radio-esque Spotify stations app (in some countries)
 - “Over time, more than 20% of all Spotify listening will be non-music content”
 - Goal: “becoming the world’s number one audio platform”
- Ubiquity strategy: make Spotify available and as easy-to-use as possible on all devices that a consumer could want, in all locations
- Distribution – family packages, integration with Sky etc help to broaden Spotify’s appeal beyond the core target audience



- Hardware sales and music service tie users into the Amazon ecosystem
- Smart speakers encourage take-up and usage of Prime Music
- Prime Music the default option for many audio requests (“Alexa, play me some classical music”); the same applies to other smart speaker manufacturers – greater chance of traditional broadcasters being disintermediated and therefore consumers interacting with them less frequently
- US: free (ad-funded) streaming service to provide default option for audio requests on Alexa devices used by non-Prime subscribers, to broaden Amazon’s advertising reach, and to upsell



- In combination with curated playlists, auto-playlists and artist/song radio, smart speakers help streaming services to target passive listening, from which radio is considered to benefit heavily
- Smart speakers, as predominantly fixed in-home devices, act more like radio sets in their audio use-case; they are more likely to be turned on and left playing (like radio), than, say, Apple Music through a smartphone and headphones
- There is a risk over time that the UX/UI associated with smart speakers and other IP-linked devices creates an unfriendly environment for the discovery and selection of radio content, promoting sponsored or affiliate non-broadcast content at the expense of radio operators

Our review of market evidence informed a number of hypotheses on the future trajectory of audio listening and broader market developments

Mediatique hypotheses on future audio market dynamics

- Greater accessibility and availability of connected/connectable devices enable greater choice and control over listening outcomes
- ...this will drive a mixed economy in delivery (FM, DAB, IP) and consumption (multiple service types, multiple devices)
- Consumers will embrace the convenience of different devices/networks to source services and content (e.g., different devices/platforms will suit different rooms/locations/environments)
- Habit and routine will mitigate some of the full effects of technology
- Listener 'needs' and impulses will also define service choice: attractiveness of curation, emotional attachment, need for news/information, brand traction and background listening – many of these factors will remain in radio's favour
- Variance in listening outcomes by age group to become wider as younger age groups lack any retention of legacy analogue behaviour
- Listening outcomes will reflect a range of substitution effects – e.g., structural decline in physical/owned, replacement by streaming, shift from live radio to podcasts
- New forms of content, service, functionality and navigation will compound fragmentation effects
- Total audio listening hours likely to be maintained – increasing competition for leisure time (from gaming, online video etc) mitigated by more opportunities to listen (e.g., portable devices, wifi, mobile networks)

Market data also allows us to evaluate the key dynamics and prospects of listening behaviour by individual service type

Demand-side dynamics by audio service type

Service type	Dynamics	Future trends: reach	Future trends: time spent
Radio (live)	<ul style="list-style-type: none"> Still the cornerstone of all listening – at home and in the car Additional choice from DAB Smart devices and streaming services offer additional routes to radio – but alongside wider range of competing services Reach and listening remain high, but subject to substitution from additional choice offered by new audio services Future outcomes mitigated by ageing population 	↔ / ↓	↘
On-demand radio (catch-up, listen again)	<ul style="list-style-type: none"> Talent/presenter led Additional opportunities to listen – but not yet mainstream and skews towards speech content, older, ABC1 	↗	↗
Podcasts	<ul style="list-style-type: none"> Greater availability and promotion New content strands Potentially a substitute for live radio 	↗	↗
Streaming	<ul style="list-style-type: none"> Increasingly crowded and growing space – and source of new market entry Mix of free and pay options Key growth area – choice and functionality 	↗	↗
Online clips	<ul style="list-style-type: none"> Questions over market definition (audio vs video) Music is a major element of YouTube and other video sharing sites 	↗	↗
Owned digital	<ul style="list-style-type: none"> Declining medium – increasingly enabled by IP/device penetration and (cheap) cloud storage, but surpassed by streaming in recent periods 	↘	↘
Owned physical	<ul style="list-style-type: none"> Existential challenge to sales and listening, despite resurgence of vinyl among small subset of the market ...even among older age groups 	↓	↓

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We have forecast audio listening to 2035 across a number of categories

- Our analysis forecasts listening outcomes to 2035, across a number of parameters. Our central forecast estimates share of total audio listening time by service type
- The major determinant of changes in listening is behavioural differences among different age groups, with younger listeners likely to display more disruptive behaviours than their older cohorts
- We also considered how our forecast of total listening hours breaks down by platform (including the role of broadcast vs IP networks)
- ...and potential future listening outcomes by social class group and UK region

Parameters of our market forecasts

Who – age	15-24 25-34 35-44 45-54 55-64 65+
What – services	Radio Catch-up radio Podcasts Streaming Online clips Owned digital Owned physical
How – technology	FM DAB / DAB+ IP DTT / TV Physical
Where – location	At home In car/van Work/place of study Public transport/walking Elsewhere
How – device	Radio tuner Smart speaker Mobile Laptop/computer TV Other
Who – class	ABC1 C2DE
Who – where	UK regions

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We have considered previous behaviours and trendlines alongside future developments to inform our forecast of listening in 2035

- Current listening outcomes confirm significant differences in behaviour by age group
 - Younger listeners have more fully embraced non-radio audio services, and their overall radio listening has declined materially over the last 10 years
 - Older audiences – notably 45+ and 55+ – have seen less disruption to their listening behaviours, being both less enabled with technology and more conservative in their behaviours
- Past trendlines are an important guide to future outcomes, but a pure extrapolation approach may be too conservative, particularly among older groups whose behaviours have not changed substantially in recent periods
- ...as younger listeners age, they will take some of their existing behaviours into the future and affect overall patterns of behaviour among older age groups

Factors in forecasting listening by age group

Enablement

- Having access to connected devices (smartphones, smart speakers, laptops, tablets) is the primary condition for accessing digital music services
- Many listeners are already highly enabled – including across multiple devices in and out of the home – and penetration will only increase up to 2035

Behaviour

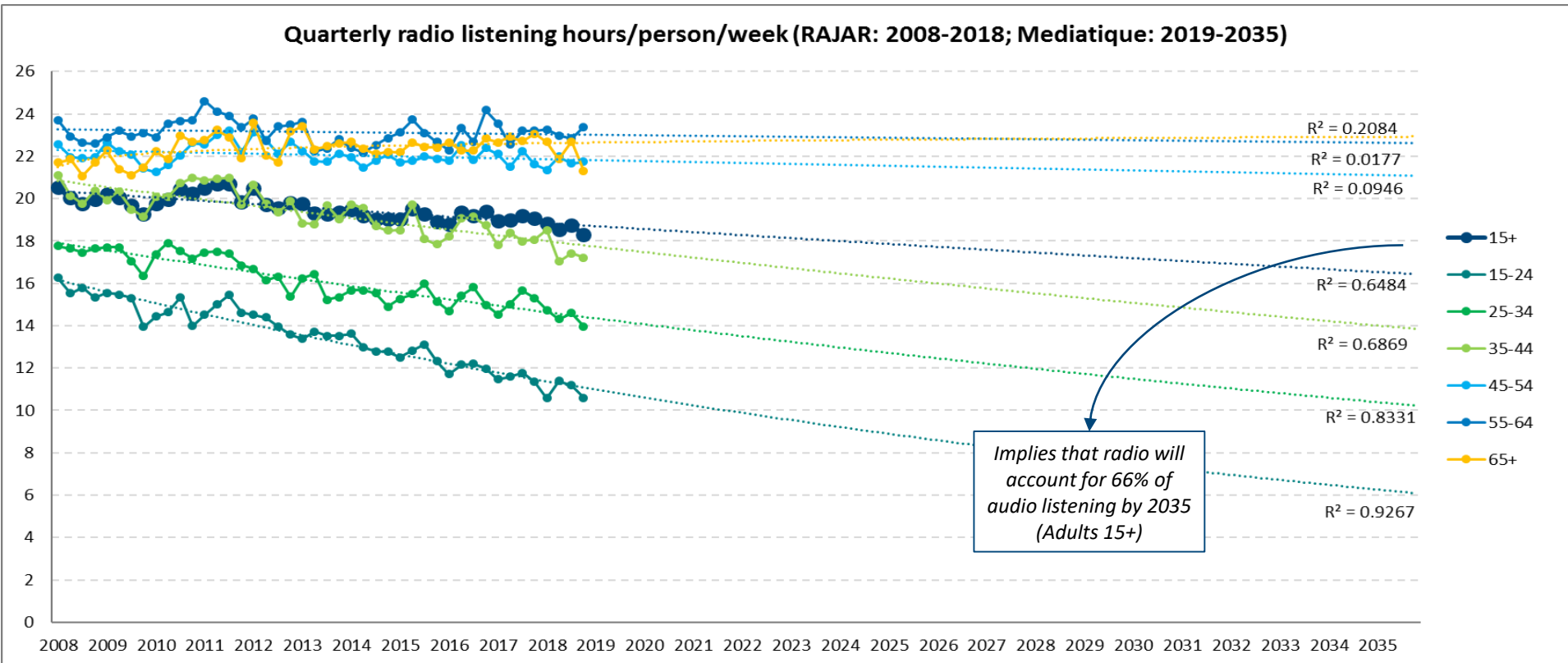
- Ownership of connected devices does not imply usage, and the full effects of enablement are not necessarily reflected in existing behaviours, particularly among older age groups who own a range of connected devices but whose behaviours have not changed materially yet
- Familiarity, greater ease of use, cheaper network packages and improved availability (e.g., Wi-Fi, faster network speeds) are likely to drive increasing usage over time

Ageing

- By 2035, some younger listeners in the 15-24 bracket will have transitioned into the 35-44 bracket – and the same applies across older age brackets too. This implies a significant degree of change in listening behaviours over the forecast period, and suggests that a conservative reading of recent behaviour may not fully reflect the degree of demographic change by 2035

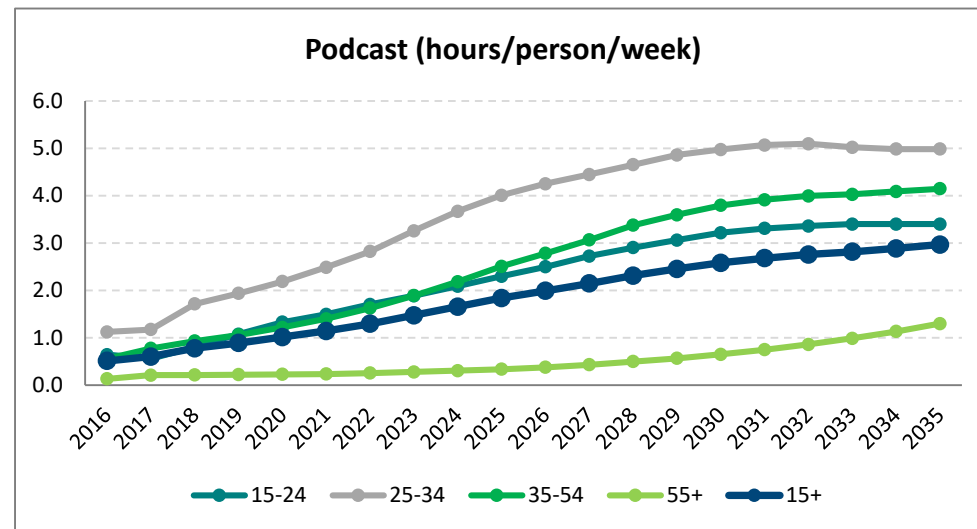
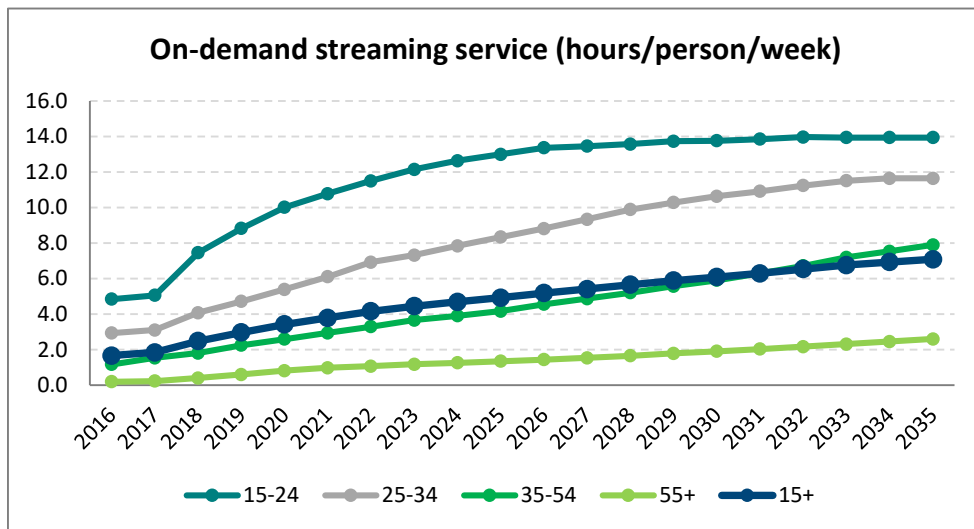
A basic trendline analysis would see radio's share of listening decline among younger age groups but remain substantially the same for older groups

- As an initial guide, we extrapolated the 10 years of radio listening (by age group) out to 2035 to assess what this might imply about future outcomes – resulting in radio securing 66% of total audio listening by 2035 (“**extrapolation case**”)
- We suggest that such an approach is too conservative among older age groups as it implies very little change to their existing behaviours even over this long forecast period



We would expect listening of non-radio services to increase among all age groups, despite relatively slow rates of change in some age groups to date

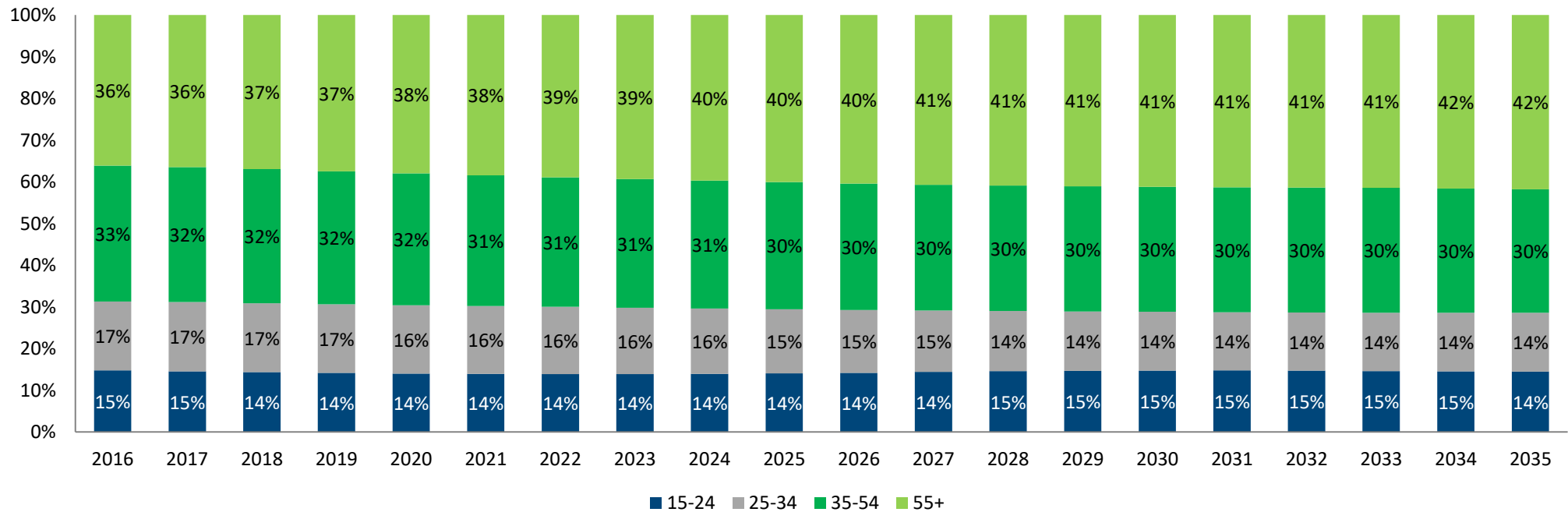
- Instead of slavishly relying on previous behaviours to guide our forecasts, we made a series of bottom-up assumptions on growth in non-radio listening by age group; these were informed by our view on the take-up and usage of connected services/devices and the impact of younger listening ageing over time
- Our forecasts imply faster increases in usage of streaming and podcasts among older age groups in the early years of our forecast period



A key mitigating factor in our analysis is an ageing population in the UK, with over 55s increasing their share of population from 37% in 2008 to 42% in 2035

- An ageing population has a noticeable effect on overall market outcomes, as the influence of older age groups (whose commitment to radio is higher, for example) increases over the model period
- We have weighted listening by age group to each group's share of the UK population to assess overall market outcomes

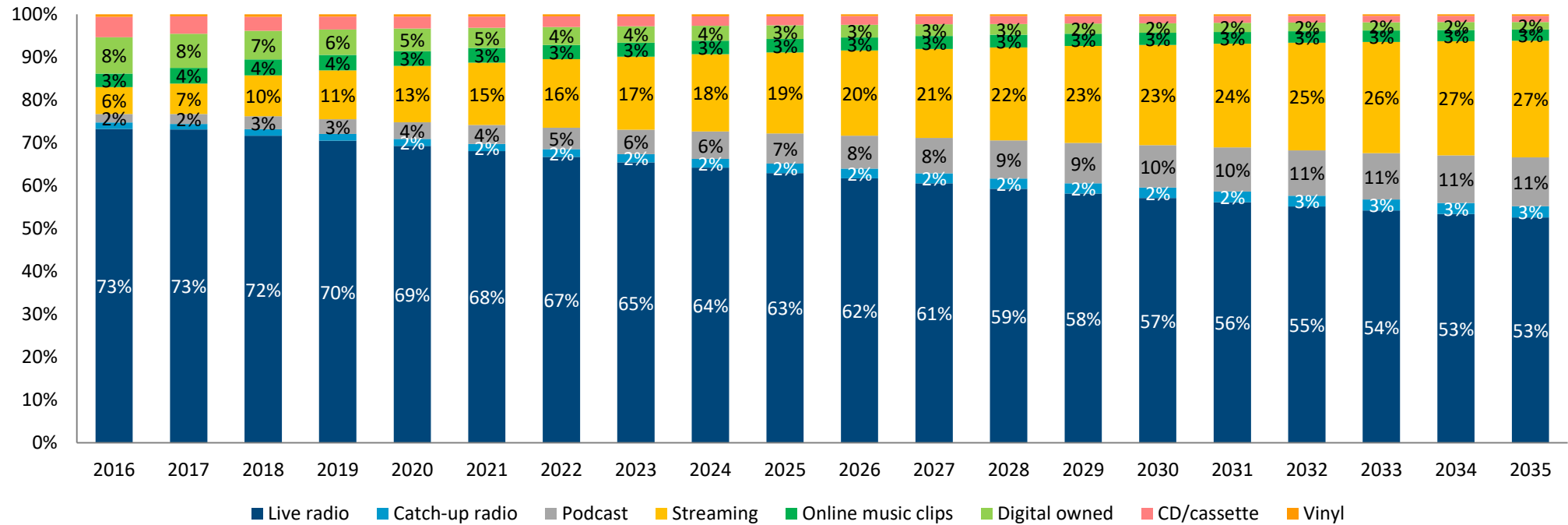
15+ population forecast, by age-group (RAJAR/ONS)



Our central forecast sees radio's share of total audio listening decline to 53%

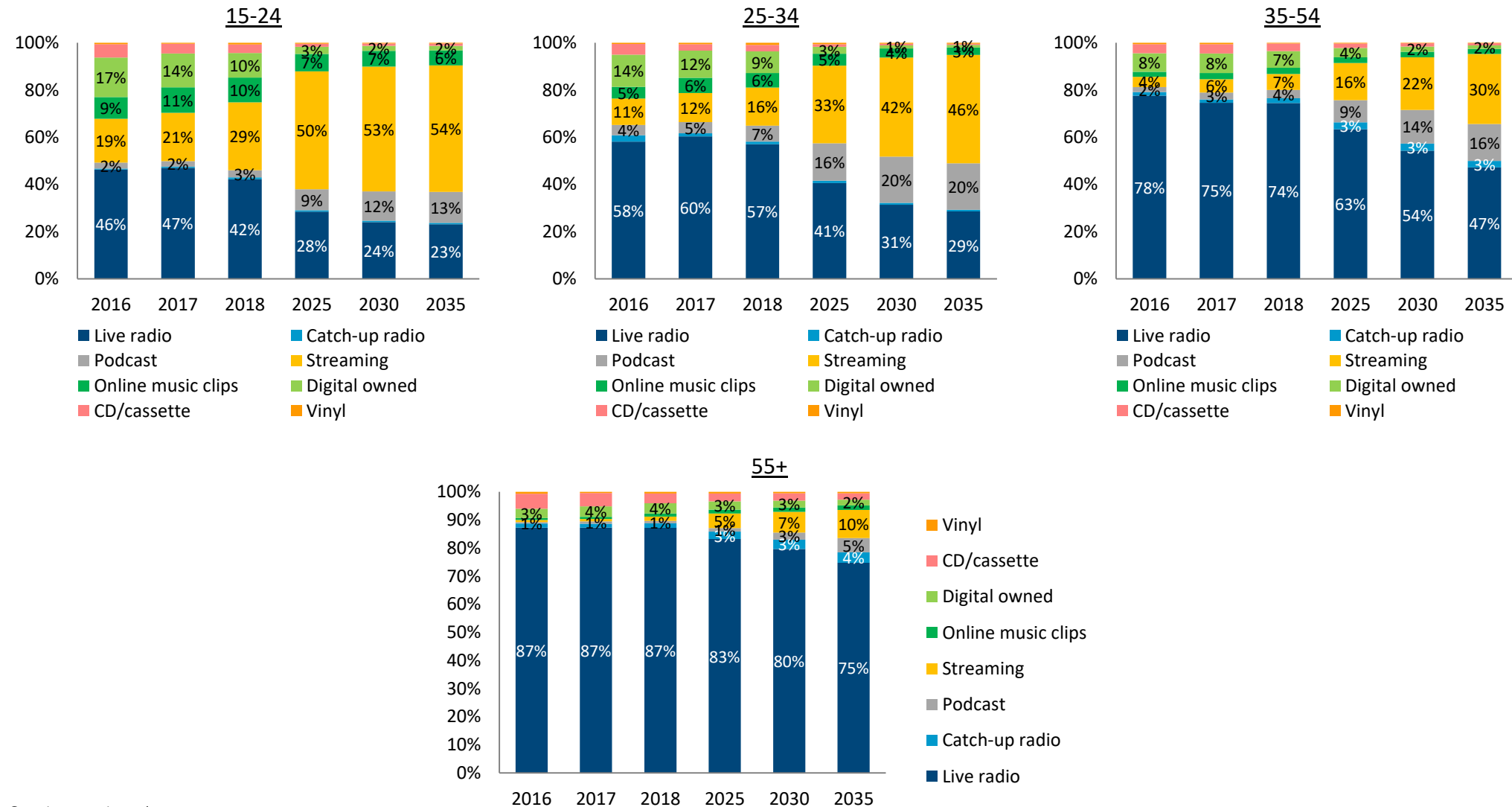
- We forecast that radio listening among Adults 15+ will account for 53% of total audio listening by 2035, down from 72% at the end of 2018
- The key area of growth is streaming, which we forecast to account for 27% of all audio listening by 2035

Adults 15+ share of audio consumption – service type (% of hours)



Radio listening among younger age groups is materially less than the average by 2035 – radio secures only a quarter of listening for 15-24s by that time

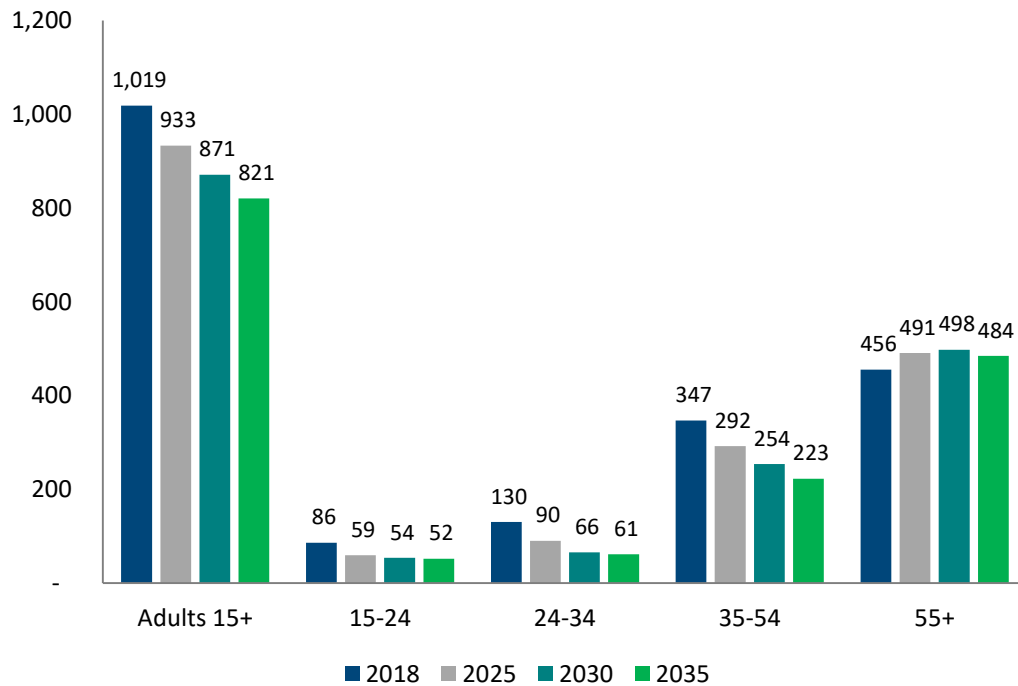
Share of audio consumption – by age group, 2016-2035 (% of hours)



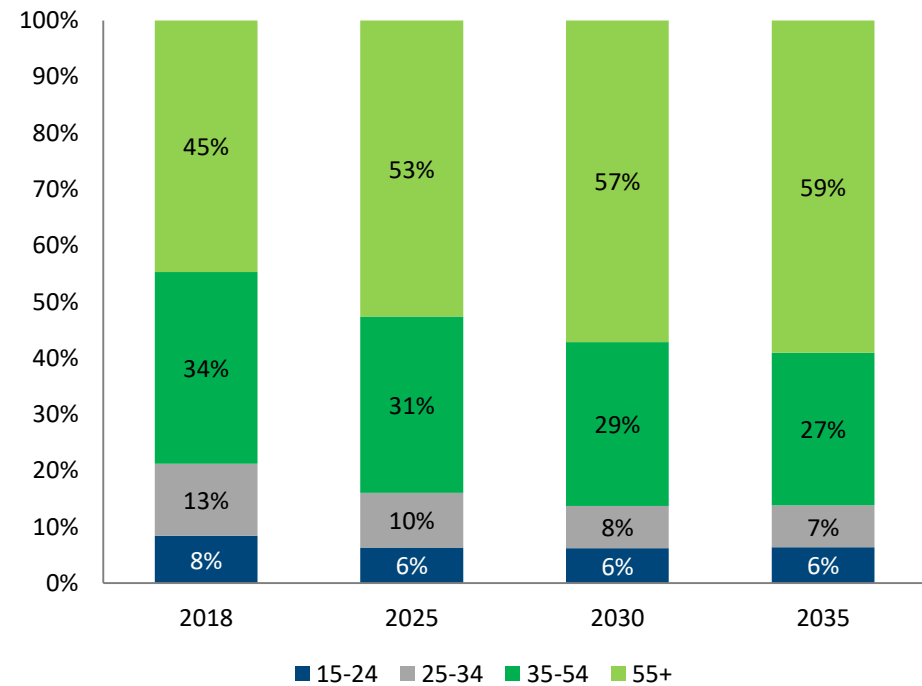
Overall time spent listening to radio (total radio hours) declines materially by 2035, and the share of radio hours consumed by the 55+ group increases to almost 60%

Total weekly radio hours by age-group, 2018-2035

Total hours of live radio per week (millions)

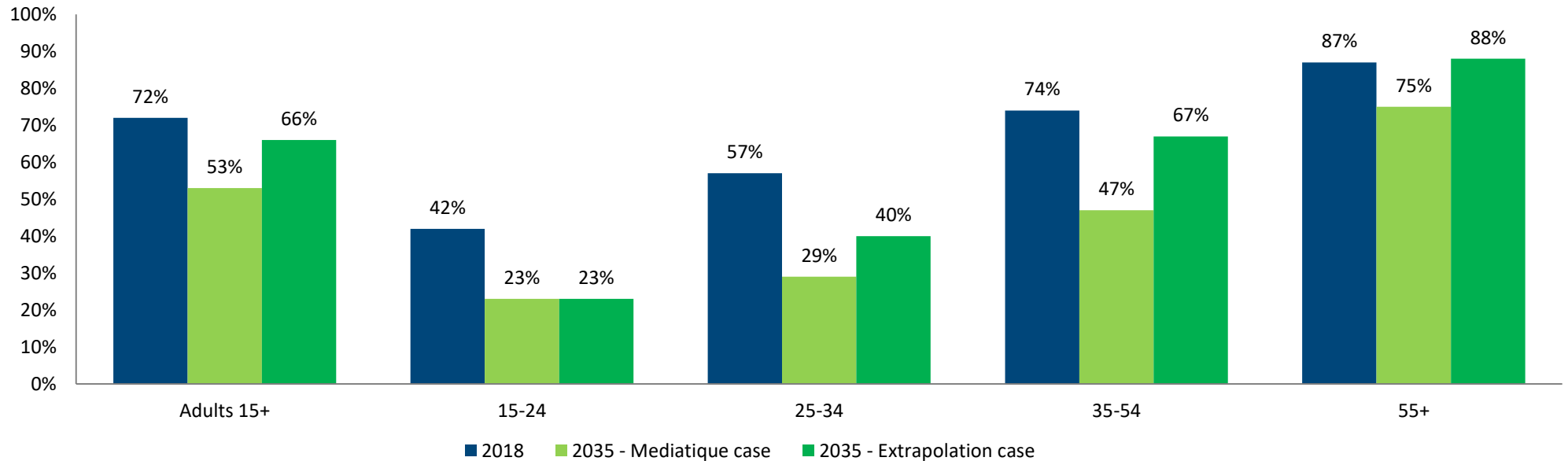


Weekly live radio listening hours, by age group



Our central case forecasts a lower share of listening for radio than the pure extrapolation case, although both imply a material decline from current listening levels

Radio share of audio consumption – by age group, 2016-2035 (% of hours)



- The pure extrapolation case (from existing trendlines) leads to much higher share of listening for radio than the Mediatique case – as the latter assumes that the impact of technology and changes in behaviour are not yet fully reflected in historic trendlines for older listeners
- This comparison highlights the degree of uncertainty in forecasting future behaviours where evidence of change is not yet clear

Our forecast sees 15-24 reach decline by almost 1% per year, while we anticipate only a slight drop in the number of over 35s listening to radio at least once a week

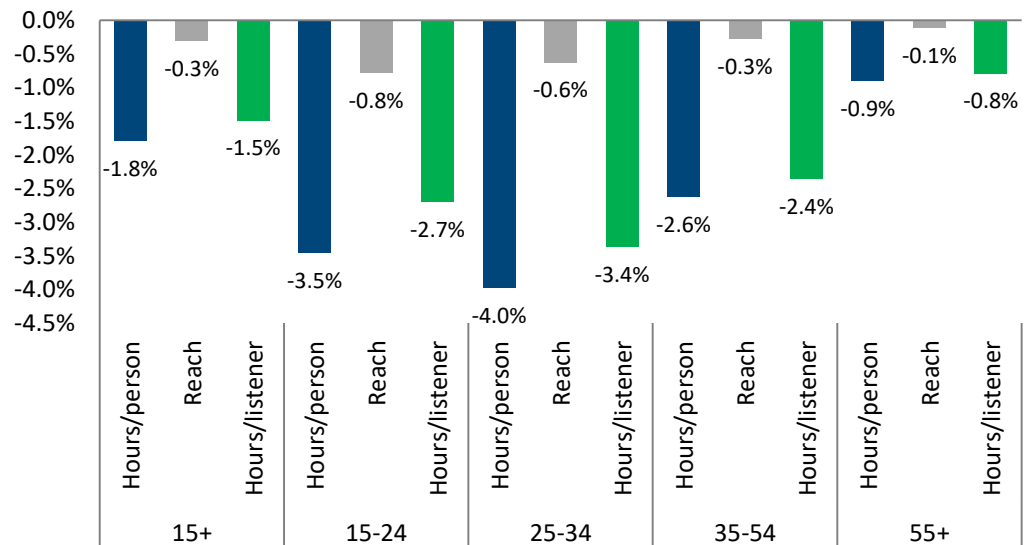
See page 10 for historical trendlines in reach and listening time

- We have considered the relative changes in reach and listening time that drive our overall radio forecast
- We forecast that the key driver of changes to radio's market share will be declines in listening hours as we predict that reach will remain consistently high (although declining) among all age groups. Notably, the reach threshold is relatively low at only 5 minutes of consecutive listening per week
- Historically, among under 35s, radio hours per listener began to decline earlier and faster than radio reach. This is logical:
 - After starting to use competing services (e.g. CDs, digital downloads, and now Spotify and podcasts), consumers gradually reduce the amount of time they spend with radio
 - Over a longer period of time, these competing services may fulfil all of a consumers audio needs – at this point they no longer listen to radio each week, affecting reach
- We anticipate that the over 35 category would have to experience several more years of declining hours per listener before weekly radio reach is affected in any significant way

Radio weekly reach forecasts

	2018	2035	2018-35 CAGR	2018-35 total change
15+	89%	85%	-0.3%	-5.2%
15-24	82%	72%	-0.8%	-12.5%
25-34	86%	77%	-0.6%	-10.2%
35-54	92%	88%	-0.3%	-4.6%
55+	91%	89%	-0.1%	-1.9%

Radio listening component forecasts: 2018-35 CAGR

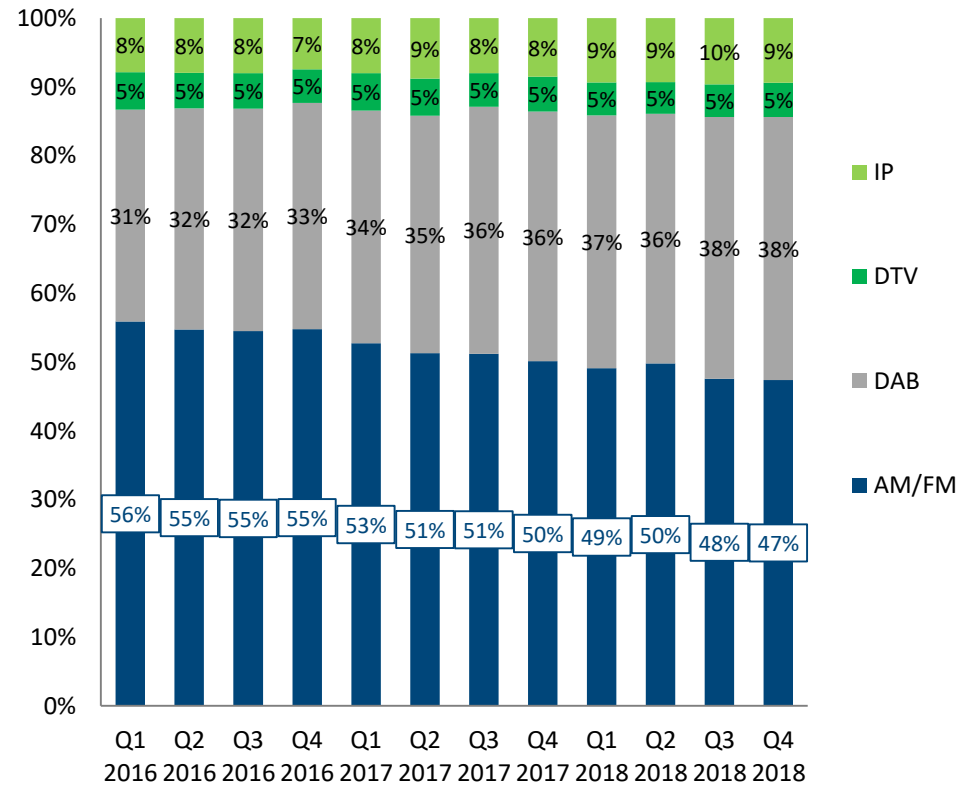


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Listeners consume radio across a range of platforms, and this mixed economy is likely to change further over time

- DAB and IP have increased their share of radio listening in recent periods. Analogue radio (on AM and FM) continues to be the largest platform for radio consumption, although is now at less than 50% of total hours
- We have considered how this picture might change by 2035, in light of changes to technology and consumer behaviour
- Our forecasts take into account the impact of increasing connectivity, take-up of DAB and connected devices (which can be used to listen to radio and non-radio services) both in the home and in the car
- We have explicitly not assumed any change in public policy towards DAB or any move towards analogue switchover

Radio listening by platform (share of hours, %)



IP delivery of radio is likely to grow the fastest, benefitting from AM/FM decline and slowing DAB growth

- We forecast the share of total radio hours that would be delivered by different platforms over the forecast period
- The key dynamics here are a decline in AM/FM listening, offset by increasing use of the DAB platform and a migration of listening to IP
- While DAB is certainly a growth platform, its potential to gain a larger share of radio listening is hampered by:
 - Slowing domestic DAB set sales and competition from IP
 - The reluctance of some listeners to switch from analogue
 - DAB’s main growth area (the car) representing only a quarter of total radio hours
- DAB coverage is probably less of a limiting factor, since the real scope for improvement here is coverage along trunk roads rather than homes

Share of live radio hours by platform in 2035

	2018		2035		Change in...	
	Share	Weekly hours (M)	Share	Weekly hours (M)	...share	...hours
DTV	5%	49	4%	30	-24%	-38%
IP	9%	96	26%	214	178%	124%
AM/FM	48%	494	13%	106	-73%	-89%
DAB	37%	380	57%	471	54%	24%
Total live radio	100%	1,019	100%	821		-19%

Further information on our methodology, observed trends and scenarios is set out in our numerical model

Smart speakers and smartphones will be the primary sources of IP-delivered radio by 2035...

- We have forecast the share of radio listening hours by device over the forecast period
- Current MIDAS data confirms that smartphones, computers and smart speakers are the primary IP devices for radio consumption currently
- ...with significant recent growth in use of smart speakers
- We forecast that smart speakers will account for most of the growth of IP-delivered radio over time, although radio will comprise a smaller proportion of all audio consumed on those devices than today (40% in 2035; 63% in Q1 2019)

Radio listening via IP, by device, 2017-2035

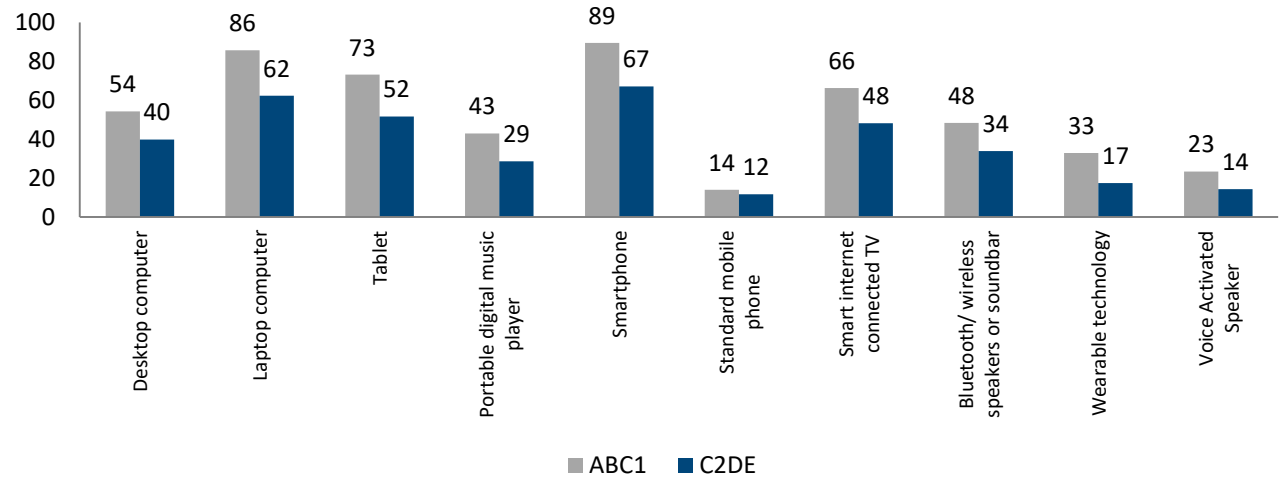
	<u>Q1 2017</u>	<u>Q1 2019</u>	<u>2035</u>
IP share of radio hours	8%	11%	26%
<i>Of which...</i>			
...smart speaker	3%	28%	55%
...smartphone	28%	34%	32%
...tablet	10%	9%	4%
...computer	59%	30%	10%

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 - **By social class**
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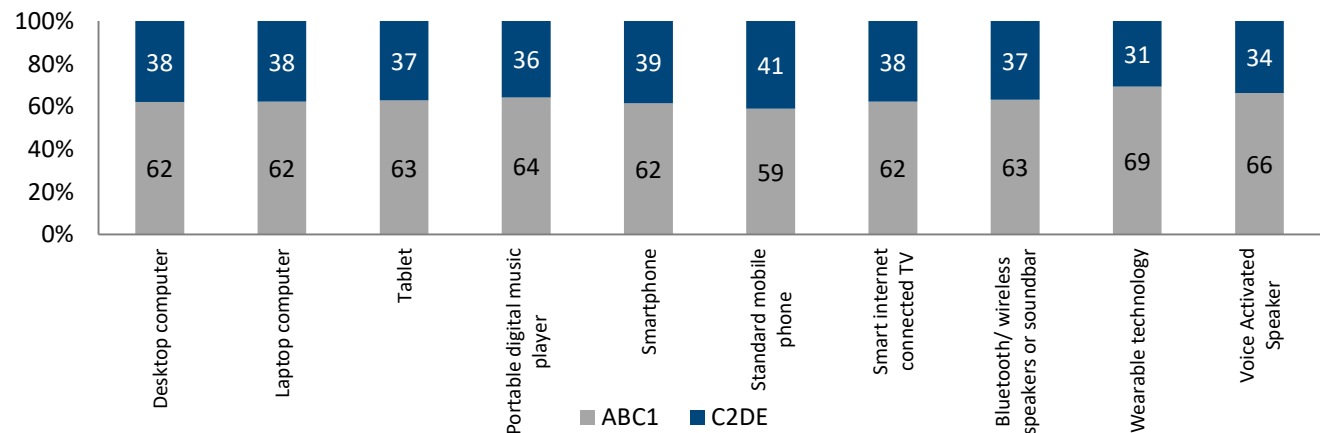
MIDAS data confirms that there are differences in device enablement between the two main social groups, with ABC1s having greater access to connected devices

- Recent increases in the number of ABC1s have plateaued, and ABC1s' share of population is now relatively stable at 55%
- ABC1s are more enabled – with higher internet penetration, more devices, greater use of social media, and connected audio
- C2DEs are generally less enabled (currently), and this group is likely to include more refuseniks and those with a higher habitual commitment to radio

Which of these devices do you personally own or have access to? (MIDAS)

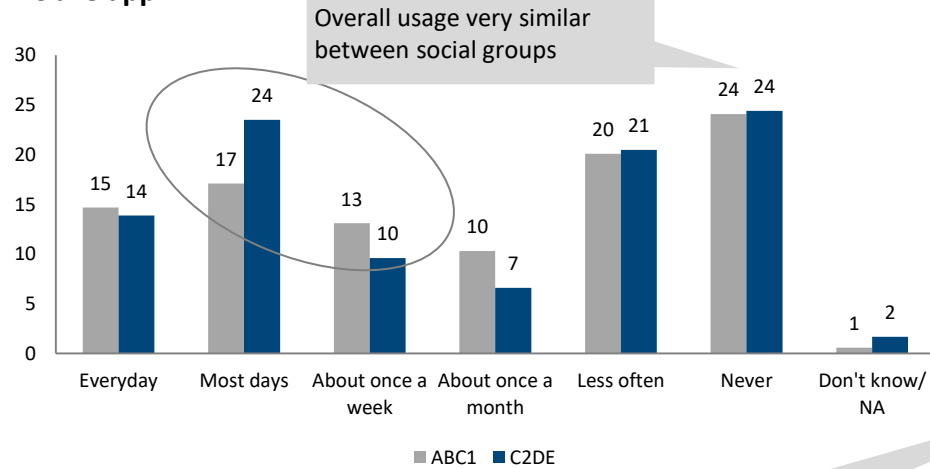


Split of total owned devices, by social class (MIDAS)

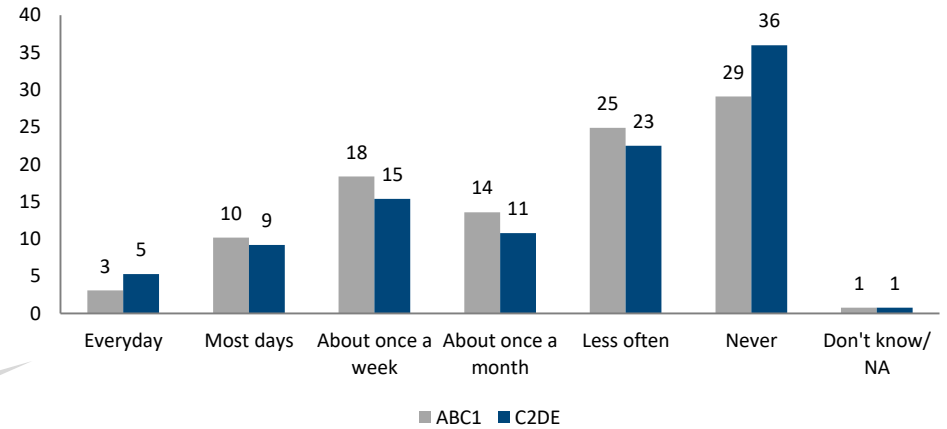


Consumption data confirms that certain catch-up radio and podcasts are more heavily used by ABC1s; although use of on-demand music generally is relatively even between the two social groups

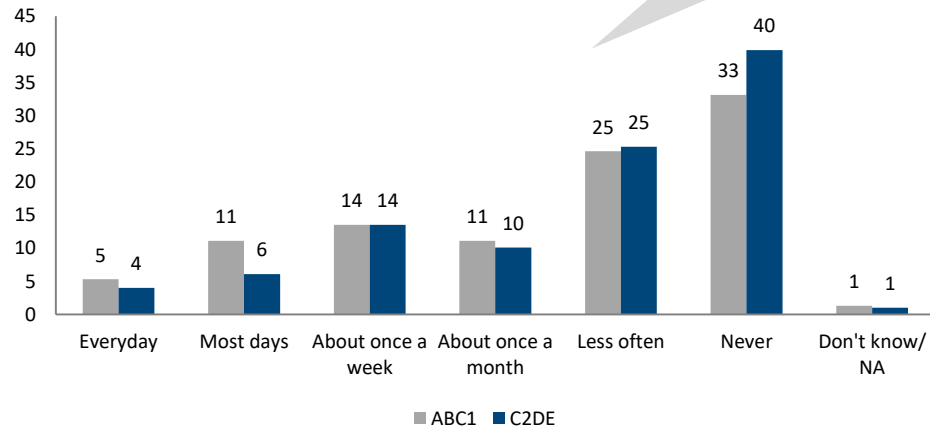
Frequency listen to 'live radio' via the internet or via a mobile app



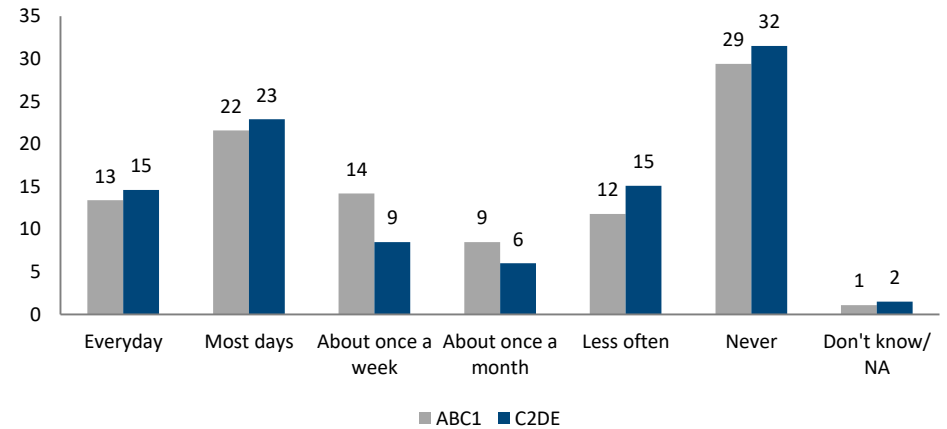
Use the 'listen again / catch up' feature on a station website, Radioplayer, BBC iPlayer Radio/BBC Sounds or mobile app



Usage of podcasts/downloads

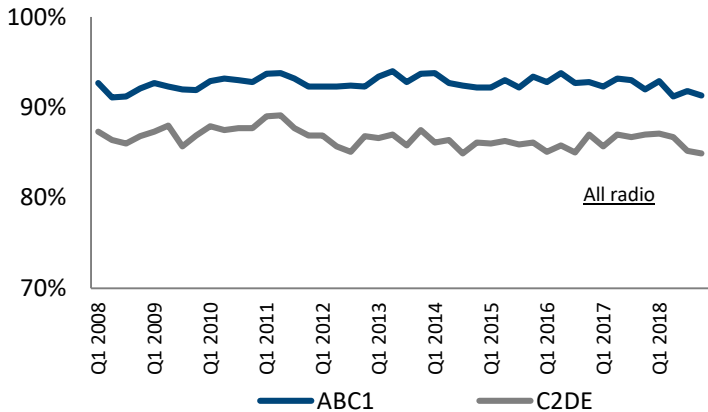


Usage of on-demand music services



Changes in reach and time spent are not markedly different between the two social groups, although ABC1's share of total radio hours has declined in recent periods

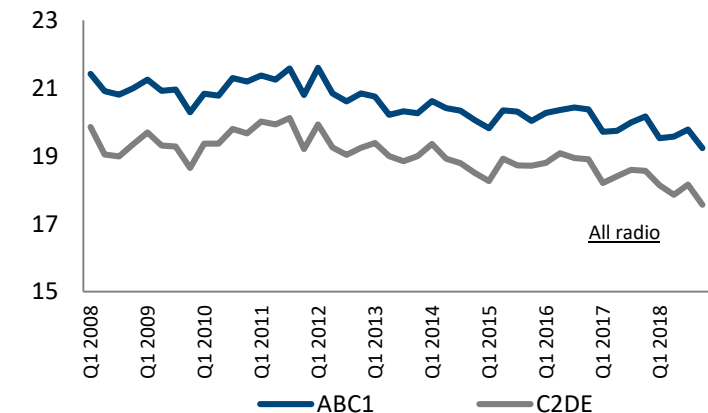
Live radio reach, % - by social class



Radio reach is higher among ABC1s (but falling recently), but average time spent is lower...

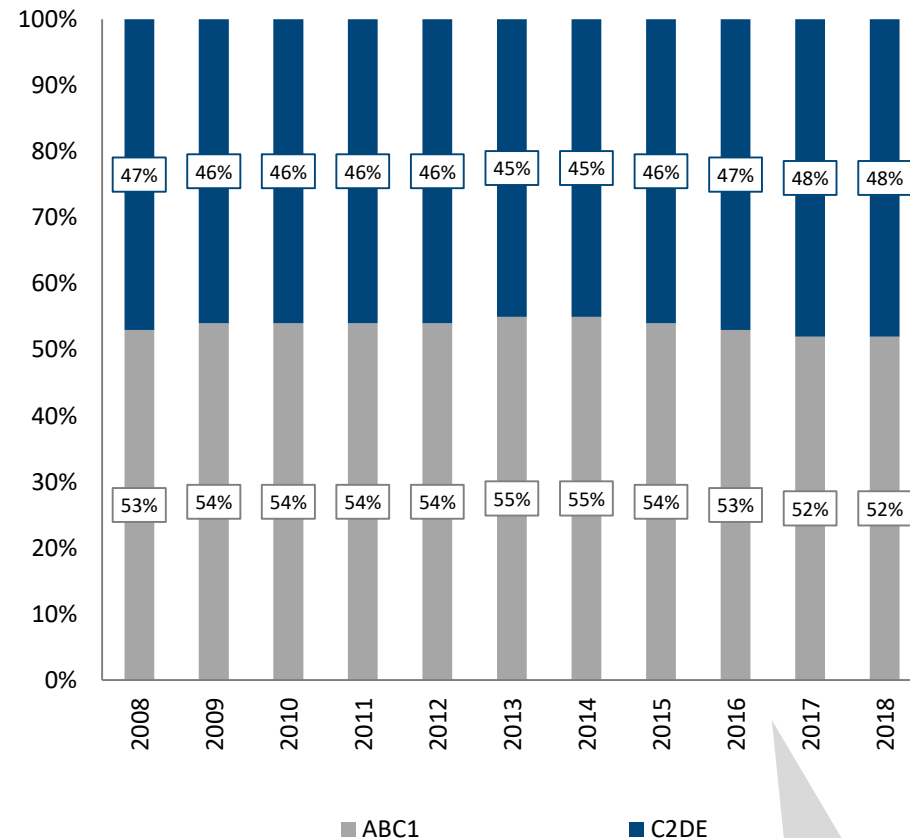
...and ABC1 less reliant on AM/FM

Live radio hours per listener - by social class



...but no discernible difference in rates of change by social class over the full period

Share of total radio hours - by social class



...but a small band of only 3 percentage points of variation across 2008-18 suggests limited scope for change over time

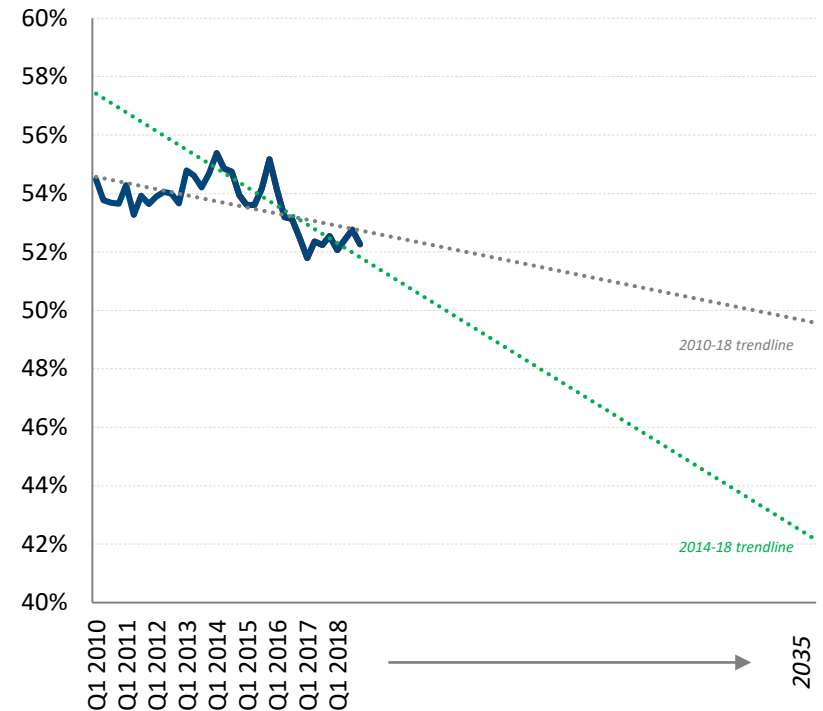
ABC1s moving away from radio slightly more quickly since 2016...?

Current trends suggest that there may be a case for radio to become more skewed towards C2DE over time, although the data is limited

Future predictions on social class

- There are noticeable differences in listening outcomes by social class – ABC1s have more access to connected devices, have a higher reach in radio, but listen to less radio than C2DEs
- Recent periods suggest a potential acceleration in ABC1’s migration away from radio (although only a few percentage points), which would skew radio listening towards C2DEs were this to continue
- Indeed, the C2DE group is also more likely to include refuseniks and those with higher commitment to radio
- There is a case for radio to become more skewed towards C2DE over time (>50% by 2035), although this could be mitigated by a rebalancing effects as digital convergence becomes ubiquitous and C2DEs catch up with ABC1s in terms of enablement and usage

Future trendlines: ABC1 share of radio hours

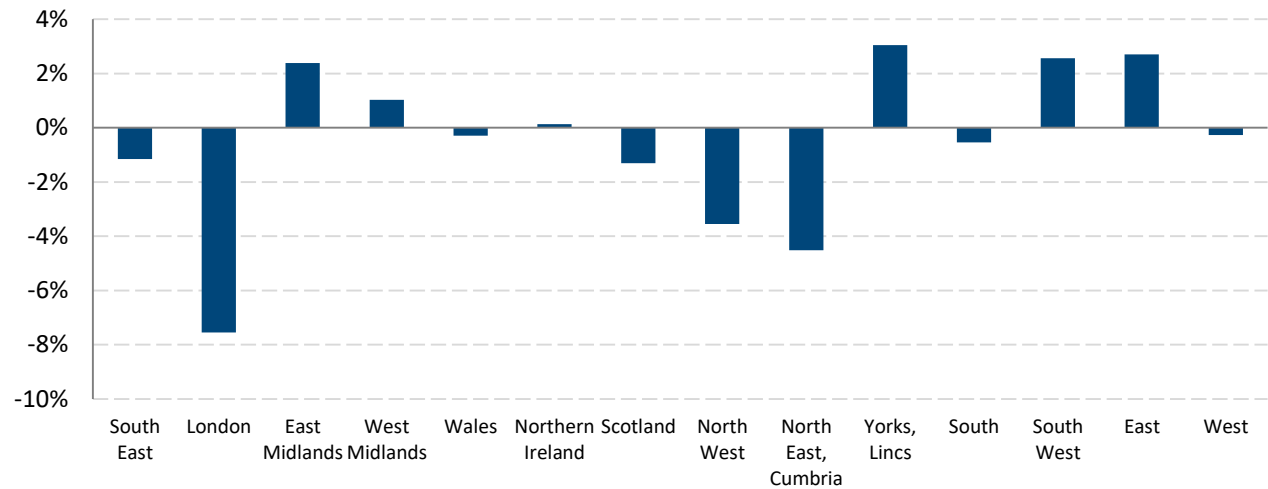


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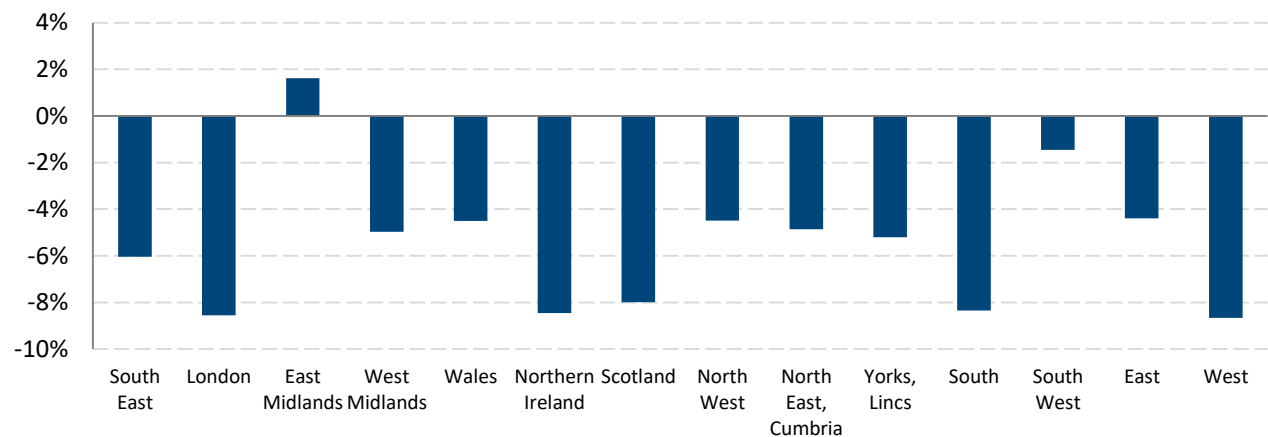
UK regional data broadly reflects the national picture of declines in radio reach and listening – although specific circumstances may affect changes in certain regions

- Regional data on radio reach and listening reflects the overall national pattern of decline since 2010
- Overall reach is down across the UK, but some regions have seen reach increase and others fall materially. This captures anyone who listens to the radio for at least 5 minutes a week
- More importantly, in almost every region, average listening hours have declined. There are a couple of small anomalies in certain areas (e.g., East Midlands), which may reflect changes in population or specific changes in radio service provision

Change in radio reach (%), 2010-18 (average in each year)



Change in radio average hours (%), 2010-18 (average in each year)

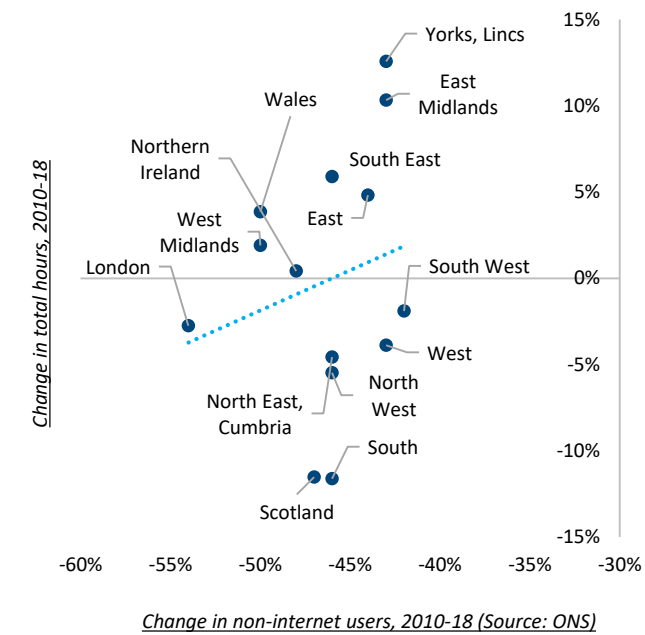


■ 2010-18

Higher internet/technology use in a region correlates to declines in radio reach and listening

- We have tracked the relationship between use of the internet among each region's population and changes in reach and listening over time – which confirms our view that technology and enablement is a key driver of changes in listening behaviour
- Those regions with a higher percentage of non-internet users have seen lower declines (and in some cases increases) in the reach and listening hours of radio

Internet use vs change in radio listening/reach



Tech index refers to scale of people not using the internet in each region

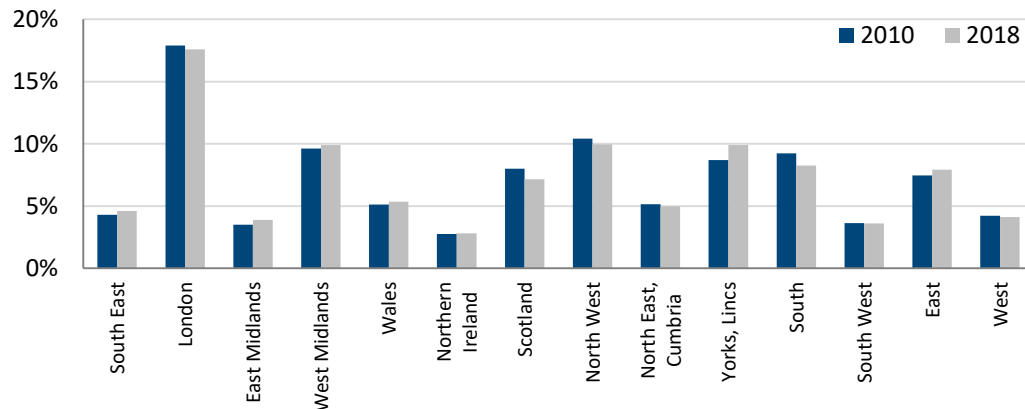
Overall changes in total radio listening hours also reflect changes in population within each region – either mitigating or compounding changes in reach and average listening

Changes in radio listenership data, by UK region (2010-18 change)

	Reach	Average hours	Population	Total hours
South East	0.9%	-11.2%	18.5%	5.9%
London	-9.2%	-6.8%	15.0%	-2.8%
East Midlands	4.2%	-2.3%	8.6%	10.3%
West Midlands	0.9%	-5.4%	6.9%	1.9%
Wales	-0.8%	0.4%	4.3%	3.9%
Northern Ireland	0.6%	-5.2%	5.4%	0.4%
Scotland	-6.7%	-10.0%	5.7%	-11.5%
North West	-6.9%	-0.5%	1.8%	-5.5%
North East, Cumbria	-3.7%	0.5%	-1.0%	-4.6%
Yorks, Lincs	6.9%	-0.9%	6.4%	12.6%
South	-2.5%	-9.7%	0.2%	-11.6%
South West	-1.1%	-3.3%	2.4%	-1.9%
East	2.4%	-4.8%	7.8%	4.8%
West	1.1%	-7.4%	2.7%	-3.9%

- We have seen already that changes in reach vary by region, but generally average hours are down in almost every region
- However, in many cases, population growth is able to offset declines in listening and reach – in some cases, driving an overall increase in total hours within a specific region
- This is likely to be an important factor in determining future listening outcomes, if there are marked changes in regional populations by 2035

Changes in share of radio listening by UK region



- When translated to a share of overall radio listening by region, changes between 2010-18 are not particularly marked

Future population outcomes will see faster growth in England (including London and the South), and an ageing population in all regions

- ONS forecasts population growth by UK region past 2035 which gives an insight into what might drive regional listening over time
- All UK regions are expected to grow, with England growing faster than the other nations, although not materially. Within England, London and the South will grow fastest
- All UK regions are also expected to age, with increases in the proportion of each population that is over 45. Interestingly, the fastest growth in over 45s will occur in London, the South and the East (in the case of London, from a lower starting base)

Population projections, by UK region

	2016-36 CAGR	2016 share of UK	2036 share of UK
England	0.48%	84.2%	84.7%
Wales	0.31%	4.7%	4.6%
Scotland	0.27%	8.2%	7.9%
Northern Ireland	0.26%	2.9%	2.8%

England population forecast, by region (ONS)

	Growth 2018-35	2018 share of England population	2035 share of England population	2018: pop over 45	2035: pop over 45	Growth in over 45 population
England	8%	100%	100%	44%	47%	16%
North East	2%	5%	4%	47%	48%	6%
North West	5%	13%	13%	45%	47%	10%
Yorks/Humber	5%	10%	9%	44%	47%	10%
East Midlands	9%	9%	9%	46%	48%	15%
West Midlands	8%	11%	10%	44%	46%	12%
East	11%	11%	11%	46%	49%	19%
London	12%	16%	17%	34%	41%	33%
South East	9%	16%	16%	46%	50%	19%
South West	10%	10%	10%	49%	51%	15%

We do not foresee material differences in each region's share of total radio hours by 2035, in light of the interplay of listening and population trends

Conclusions and future predictions on UK regions

- While we were not tasked with building our listening model on a region by region basis, we have considered how radio listening trends vary by region and how they might be expected to change (if at all) over time
- There are unique trendlines in terms of reach and listening time by UK region, and these are correlated with the use of connected technology in each region
- Such differences may converge over time as public policy continues to in-fill technology blackspots and differences in technology penetration and usage are less stark by region (leaving the key technology differentiator as listener age). Such a reading would suggest that most UK regions would therefore mirror the UK average in radio reach and time spent, both of which are set to decline
- A major determinant of future regional differences will be population, with England (and within England, London and the South) accounting for a higher share of the UK population by 2035
- As our analysis already shows, the UK population will continue to age, which will benefit radio listening over time. This will be true across all UK regions, although some regions are set to age faster than others (e.g., London, the South East and East) which may provide some further marginal mitigation on listening trends
- Our analysis suggests that while some regions with (current) greater use of connected technology (e.g., London, the South East) might see greater declines in radio consumption, their share of total radio hours may be offset by faster population growth and population ageing
- In overall terms therefore, we do not foresee marked differences in each region's share of total radio hours by 2035

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In addition to our base case, we have also modelled three alternative scenarios using sensitivities around device take-up and consumer behaviours

Overview of alternative scenarios

▪ Radical acceleration (Tech + Consumer)

- Extensive 'smart' device take-up in home and in vehicles – higher than base case
- Fast expansion of enabling technologies (fixed and wireless broadband, including 5G)
- Consumers switch their audio consumption to internet-enabled services at a faster pace than in base case
- Radio listening over IP increases

▪ Moderate change (Tech + Consumer)

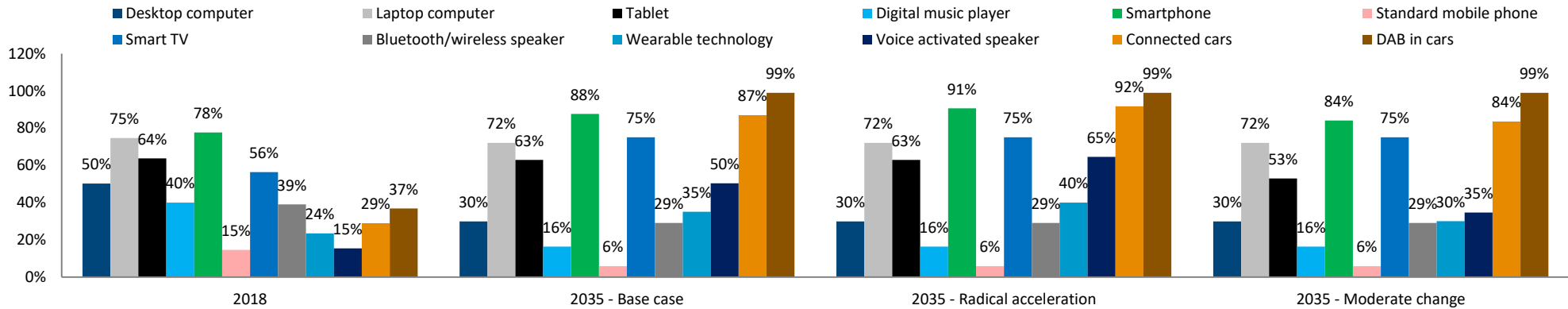
- Smart speakers and connected car equipment stagnate
- Consumers retain legacy behaviours (e.g. radio remains by far the dominant audio source in vehicles)
- Late adopters eschew patterns of use set by younger demos

▪ Demographic divergence

- Combines elements from the three main scenarios whereby the observed consumption divergence between the age groups is exacerbated over the forecast period
- 15-24 – radical acceleration; 25-34 – base case; 35-54 – moderate change; 55+ – moderate change

Differences in forecasts for certain connected devices drive (but do not determine) relative changes in consumer usage of 'growth' services across the scenarios

Device take-up, by scenario (Adults 15+)



Translated into a composite index, for modelling purposes

Forecasts (CAGR) for 'growth' audio categories, by scenario

ADULTS 15+	Mediatique base case		Radical acceleration		Moderate change	
	Reach	Hours/user/week	Reach	Hours/user/week	Reach	Hours/user/week
2018-2035 CAGR						
Streaming	5.1%	2%	5.7%	2.8%	4.5%	1.5%
Podcasts	7.1%	2.3%	7.8%	3%	6.3%	1.7%
Catch-up radio	2.4%	2.6%	2.7%	3.4%	2.1%	1.8%
Online music video clips	1%	1.3%	1.1%	1.8%	0.8%	1.1%

Note: These are growth rates before substitution; they are an input to the model. Streaming (e.g.) competes with other 'growth' audio categories, so its post-substitution growth in hours/person/week that is an output of the Mediatique model is lower than these figures suggest.

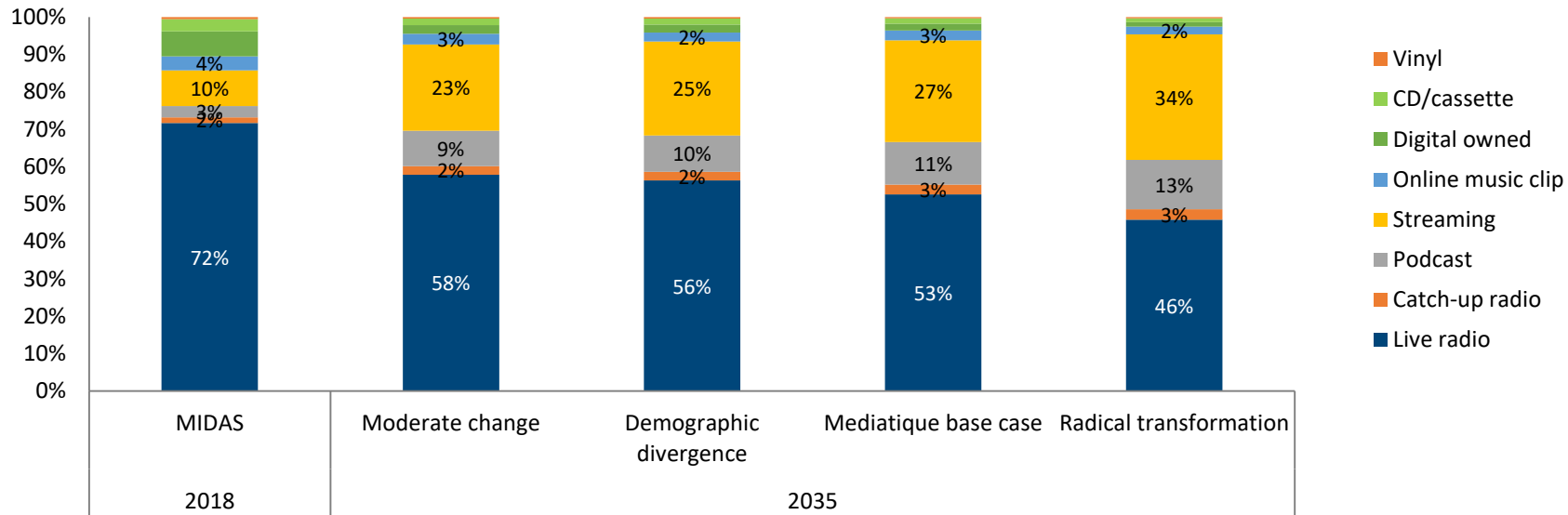
Our scenarios follow the hypothesis that there is likely to be greater scope for divergence from our base case among the over 35s than the under 35s

Hypotheses and rationale...

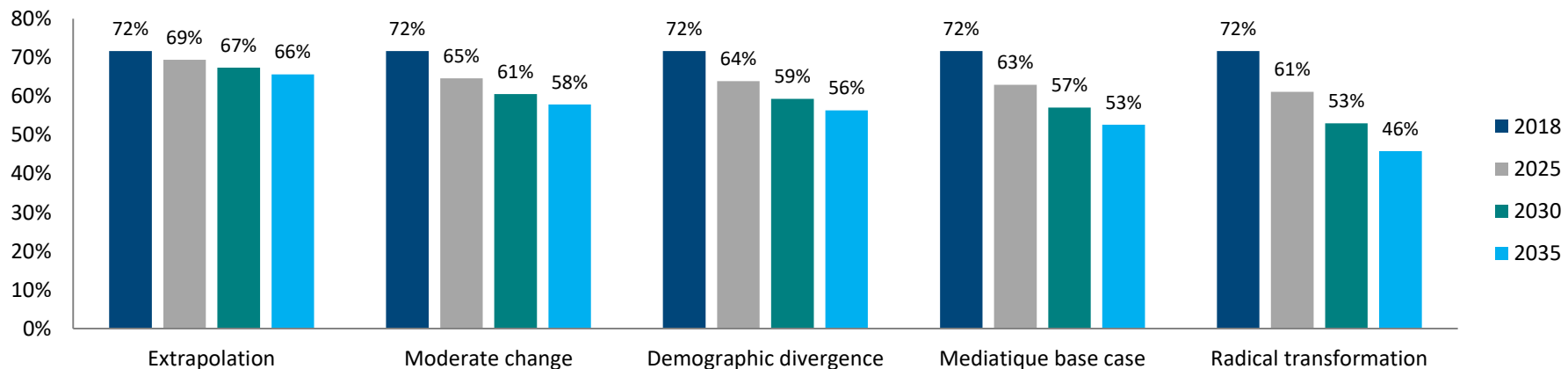
- Altering device take-up has greater implications for over 35s than under 35s:
 - Younger consumers are already (or will be) 'enabled' for podcasts and streaming; smart speakers and connected cars mean they might consume more of these services per week, but is unlikely to radically affect reach
 - For over 35s, smart speakers offer a use case for on-demand streaming or podcasts which may not have existed before, bringing these services into competition with radio, CDs and digital downloads 'by accident'
 - Connected cars (especially those with voice activation) increase the convenience and safety with which non-linear audio sources can be played in the car
- The potential increase/decrease in streaming and podcast usage across the scenarios is greater for over 35s (+/- 30-40%) than under 35s (+/- 15-20%)
 - We believe there is greater potential for the listening behaviours of older consumers to diverge from our base case given the greater uncertainty inherent in forecasting for these groups – while we have insights into why and how their listening behaviours might change, the data have given fewer indications as to the likely extent of audio substitution
- Radical Transformation can be interpreted as a 'what would you have to believe' scenario – that is, how aggressive would the assumptions have to be for radio to represent well under 50% of total audio listening by 2035, and how credible are these?
 - 55+ streaming reach @ 38% by 2035, vs 31% in the base case and 10% in Q1 2019; 35-54 streaming reach @ 73%, vs 66% in the base case and 26% in Q1 2019
 - Streaming users age 15-24 listen to 23 hours of streaming services a week, vs 20 in the base case (before substitution) and 10 in Q1 2019
 - Smart speakers are present in 65% of households, vs 50% in the base case and 19% in Q1 2019...
 - ...including 45% of over 55s, vs 25% in the base case and 10% in Q1 2019
 - Are older consumers - whose share of population gives them powerful influence over the future of radio listening - going to change their behaviours this quickly given their satisfaction with existing ways of listening to audio? (See p. 10 for data on the strength of radio listening among over 55s throughout the past 20 years)

By 2035, the four scenarios span a 12 percentage point range of outcomes for live radio listening as a share of all audio

Adults 15+ share of audio listening, by scenario



Adults 15+ radio share of audio listening, by scenario



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Key findings from our analysis

- Radio listening has been relatively robust to date, but the picture is flattered by listening habits of older demographics; younger age groups evince declining reach and significantly lower average listening as they turn to streaming (and more recently podcasts), as well as online clips
- Radio consumption is being directly affected by growth in these other forms of audio, which have been in recent years cannibalistic rather than incremental; the key growth segments have been streaming and more recently podcasts – enabled by ubiquitous fixed and mobile connectivity, widespread take-up of new connected devices and competition from online players
- Demographically adjusted current behaviours extrapolated simply forward would see radio listening decline to around 66% of total audio listening by 2035, from around 72% today (i.e., based solely on current trend lines for key demos based on 10 years of RAJAR live radio data)
- However, it is reasonable to assume that the full effects of technology enablement have not yet been felt across all age groups, and further accelerations in behavioural changes is likely. Indeed, it is likely that the most recent behaviours of older cohorts do not yet incorporate the substitution dynamics that are likely to occur as digital engagement grows among all population segments (and as cohorts age)
- Our base case suggests a decline in radio's overall share of audio to around 53% (assuming no change up or down in audio as a share of total time spent) – this would be worse but for cars ('fortress radio')
- We expect DAB to account for around 57% of live radio listening hours in 2035; with IP consumption touching breaching 25% and DTV at 4%, this takes digital listening over 85%
- At some point in the next 10-15 years, the commercial viability of AM/FM may be seriously undermined through declining listenership relative to DAB, although not to a level where large players are likely to feel they can abandon remaining analogue listeners

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We considered whether take-up of DAB had boosted overall radio listening, and whether further DAB penetration would mitigate pressures on radio in the future

- A key issue in this analysis is the lack of a counter-factual – we cannot know how radio listening would have progressed in the absence of DAB launch and expansion
- For example, while DAB listeners tend to consume more live radio than AM/FM listeners, but we cannot be sure that is because DAB offers more station choice and better quality or because those most likely to buy DAB sets are heavier radio listeners to start with
- Since no counterfactual exists, we do not have a case against which to compare actual RAJAR time-series data. Instead, we commissioned a bespoke RAJAR data run from IPSOS, allowing us to compare changes in DAB set ownership with changes in live radio listening across 53 regions of the UK, from 2008-2019

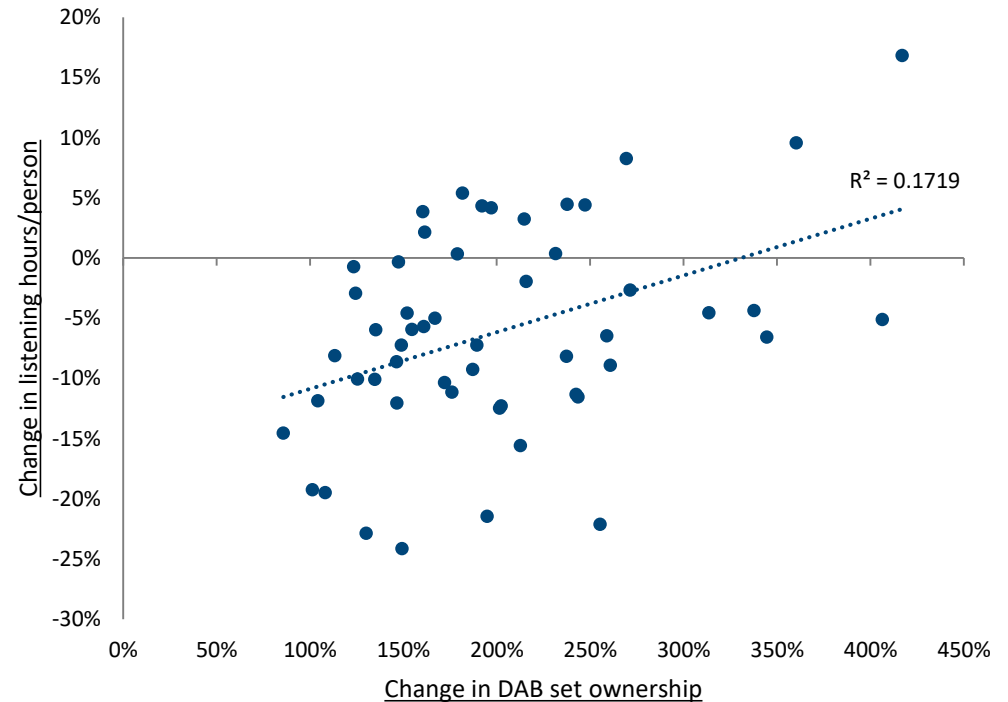
Methodology

- We undertook a statistical analysis to consider whether DAB set ownership correlated with changes in live radio listening
 - Independent variable: change in DAB set ownership from year a to year b
 - Dependent variable: change in live radio listening hours per person per week (i.e. encompasses reach and hours per radio listener) from year a to year b
- We need a statistically significant result in order to reject the null hypothesis that across our 53 geographical areas, changes in DAB set ownership are not correlated with changes in listening hours per person (i.e. there is no statistical significance in this set of observations)

Regression analysis allows us to reject the null hypothesis, but the initial evidence in favour of a 'DAB boost' is not strong

- Our analysis suggests that there is statistical significance in this set of observations and that we can reject the null hypothesis – such that this model may have some analytical value
- There is a correlation between the two variables, however, this does not necessarily imply causation
- Low r-square suggests that the data do not fit the model too well and that not a lot of the variance in listening (y-values) around the mean can be explained by the x-values (DAB set ownership)
- ...namely, there are probably other factors at play

2008-19: change in DAB ownership vs change in hours



Regression Statistics	
Multiple R	0.41
R Square	0.17
Adjusted R Square	0.16
Standard Error	0.08
Observations	53

Each data point refers to one of the geographical regions

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	-0.15585	0.03106	-5.01728	0.00001	-0.21821	-0.09349
DAB ownership	0.04716	0.01449	3.25416	0.00202	0.01807	0.07625

Our work on this topic necessarily falls short of a comprehensive analysis; it should not be seen as the definitive answer

Shortcomings of our modelling

- IPSOS were only able to provide data from Q1 2008 to Q1 2019; some of the benefit of DAB's launch and expansion may have taken place before that decade
 - Ideally, we would have been able to start at 0% DAB take-up for each region and then measure change over time
- The logic behind the theory that DAB provides more choice (and perhaps better quality sound etc), which encourages consumers to listen to more radio than they otherwise would, remains strong and is not necessarily disproved by our modelling

Further notes

- We used the same analytical process for different time periods, e.g. 2008-12
 - In only one case was there a similar level of statistical significance to our original 2008-19 analysis – 2008-15
- We also swapped out the independent variable (hours/person/week), replacing it with hours/listener/week and then reach; in both cases there were slightly weaker correlations than in our original analysis
- IPSOS was also asked to pull the number of stations available in each region in each year – our intention was to examine whether changes in radio listening were correlated with changes in the number of stations available (which is likely to be related to DAB/DAB+ giving consumers more choice)
 - However, the data we received were hampered by technical reporting issues and were insufficiently accurate to be useful for our analysis

While the theory that DAB boosts or protects radio has not necessarily been disproved, the data we have analysed offer little evidential support

Conclusions

- Based on the RAJAR data we have available, we can conclude that:
 - DAB take-up may have played some role in improving radio's position (relative to a non-existent counterfactual) over the past ten years...
 - ...but it is difficult to say so with certainty...
 - ...and even if we do accept that DAB played some role, it is hard to say how important it was as many other factors were at play
- Overall, the data and our analysis do not provide comprehensive or definitive answers
- The scope for DAB's ability to somewhat mitigate radio's decline in the future appears to be small
 - Not only do the historical data offer little support, but domestic DAB set sales are slowing and it appears that most future DAB ownership growth will come from vehicles, which only represent c.25% of all radio listening
 - Moreover, any future increases in DAB set penetration (home or vehicle) may not necessarily drive or protect radio listening as people will own multiple devices and use DAB radios alongside connected devices
- However, the logic behind the theory that DAB (especially through improving station and genre choice) boosts or protects radio listening remains strong, although it is hard to prove or disprove in any meaningful way

Mediatique Ltd

65 Chandos Place
London WC2N 4HG
UNITED KINGDOM

Telephone: +44 (0)20 7836 5050

www.mediatique.co.uk

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