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The Future of Radio Revisited.

Expert Perspectives and Future Scenarios for Radio Media in 2025.

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Abstract

In 2005-2006 the research group DRACE (Digital Radio Cultures in Europe) performed a study on how 43 people in key positions related to the radio industry in four European countries and Canada viewed the future of radio and which delivery technologies they considered would be most successful. In addition, it analyzed the motives and reasons why certain technologies were seen as more promising than others. Finally, it presented four different future scenarios for radio media. The study was published in the Journal of Radio and Audio Media, May 2008.

In 2005 the future of radio was considered much less obvious and clear than it appeared 10 years previously. Instead of a transition from analog to digital audio broadcasting (DAB), there was a selection of alternative technological options for digital audio delivery. When looking back from 2015 and considering the results of expert interviews, the project group about Public Service Media in the HERA project: Transnational Radio Encounters found interesting perspectives in replicating this study – now looking forward to 2025. By using the same questionnaire and interviewing the same experts (or new persons in the same positions) they could both confront the predictions with the present situation, looking for technological, regulatory, policy based, user oriented contexts. Furthermore, they could ask the experts to look ten years forward from now. Besides from the interviews, desk studies were in order to explore the national similarities and differences as background for the analysis of the scenarios for the 2015 and 2025 studies.

This comparative study involves Denmark, Finland, Germany, Ireland and the UK.

Keywords: FM radio, digital radio, DAB, audio, on-demand audio services, mobile broadband, radio distribution technology

Introduction

Digital audio broadcasting (DAB) was not intended to supplement, but to replace European analogue FM radio completely on the congested VHF II band (87.5-108MHz). The idea of in-band switchover was however opposed by the broadcasters, so in the mid-1990s the VHF III band (174-230 MHz) and L-band (1452-1479.5MHz) were allocated for DAB instead, while the intention for a relatively quick analogue FM radio switch-off remained (Beutler 2012, 4-5). The European governments also made decisions of digitalization of all terrestrial broadcasting - for example Finland in 1996 and Germany in 1998. Germany even adopted DAB as the official standard, planning to decide about FM switch-off in 2003 (Kozamernik 1999, 16-19).

But as the years passed by, setting the date for replacing FM with digital radio did not become any easier, but rather the opposite. FM radio remained highly popular while the progress of DAB radio was much more slow than expected. By 2005, when DAB was switched off in Finland and the European Commission set a deadline for switching off analogue broadcast television in 2012, there was not a single member state with a fixed date for switching off FM. For example Ireland decided to remain in stand-by mode (O'Neill et al. 2009). However, in the UK it was brought back on the political agenda in drafting the Digital Economy Act 2010, which set criteria for making the radio switchover decision. (Ala-Fossi et al. 2008; Lax 2014) The British roadmap to digital radio inspired switchover plans in Norway (2011) and Denmark (2012), while Germany re-launched digital radio (2011), this time with the latest DAB+ version of the original standard.

The UK government had to withdraw from its plan already in 2013. It was still too early to set any fixed date for switchover, but the criteria of 50 per cent of “digital listening” (DAB, DVB and internet) remained. Denmark has similar criteria in place, but it also had to cancel its intention to simply replace DAB with DAB+ in 2013. In Norway, the decision was made dependent on DAB

coverage and digital reach instead of the amount of listening like in the UK and Denmark. So in April 2015 Norway was able to decide about replacing nationwide FM services with DAB services in 2017 as the first – and so far the only country in the world. But digital broadcast radio still enters its third decade as a parallel service - even in Norway, as most of the local and community radio stations will remain on the FM band.

Besides the shrewdest criteria for a switchover decision, Norway has also an exceptional topography, which means that even a limited supply of nationwide FM channels requires lots of transmitters. The networks are expensive to maintain and the time spent listening to only those few channels remains relatively short. In such a context, digital radio broadcasting may still appear to be a way to offer more choice, increase radio listening in general and consecutively, also radio's share of the advertising market – while cutting down the distribution costs of terrestrial radio.

Already during its first decade of existence, DAB was facing increasing competition with alternative, more efficient technologies with advanced multimedia capacity so an update to DAB+ in 2006 was a necessity. At the peak of this development, even the World DAB Forum changed its name to World DMB after Digital Multimedia Broadcasting - and France selected DMB as its standard for digital radio in 2007 alongside Digital Radio Mondial (DRM). After abandoning DAB, Finland started counting on DVB-H (Digital Video Broadcasting Handheld) a mobile TV system developed by Nokia – which was relatively soon also supported by the European Commission and made one of the official standards of the EU in 2008. Also new concepts for visual radio (e.g. Visual Radio™) and hybrid radio receivers (e.g. Radio DNS) combining broadcast radio with IP data delivery were introduced. However, multimedia radio has not had much success in the European consumer markets. The last DVB-H services remained on air until 2012 (Ala-Fossi 2016). And as also DMB services were gradually shut down, the World DAB Forum took back its original name in 2015. DRM has not got much foothold in Europe so far despite its wide roll-out in India.

Ericsson lost the game as a handset manufacturer earlier than Nokia, but it initiated the development of the concept of next generation networks (NGN) as well as the development of Mobile Broadcast Multicast Service (MBMS). These were later combined to deliver LTE (Long Term Evolution) Broadcast services over fourth generation or 4G mobile networks: 5G is still in experimental stage.

The introduction of the Apple iPhone in 2007 turned out to be the beginning of the end both to Nokia mobile phones and to separate portable audio devices like Apple's own iPod. New kinds of touch-screen smartphones and tablets soon became very popular in the consumer markets even during an economic downturn. Most of these devices do not have any in-built FM receivers, so also audio in mobiles is consumed mostly over 3G/4G as mobile broadband data using digital software applications: a smartphone with a DAB+ radio chip is international news. For example in the UK, the sales of both analogue and digital radio receivers have been in decline since 2008 – and 64 per cent of radio receivers sold in 2015 were analogue (Ofcom 2015). FM radio is probably not a bit more threatened as a mass media platform today than broadcast radio in general.

In a global perspective, broadcast radio is a growing media for example in Asia (Sen 2014) – and in many African countries radio remains even the most important media. Also in Europe, broadcast radio is in a fair health. In the Nordic region, radio has over 70 per cent daily reach and its weekly reach in the entire Europe is 84 per cent. But despite its relatively stable reach and only slight decline of the listening time, European radio is losing young listeners and their attention – and this trend does not make the introduction of digital radio any easier. For example in the UK, radio listening on “digital platforms” combined has finally reached 40 per cent level, but the share of DAB listening is still only about 26 per cent of all radio listening. (EBU 2015; Harrie 2016; Ofcom 2015)

Changes in radio regulation during the past decade in the UK and in Finland have been mostly towards further liberalization. In the UK, the introduction of a new converged regulator, Ofcom and the Communications Act 2003 helped to accelerate the growth of digital radio with deregulation and a promise for less regulation also for analogue radio when digital radio takes over the market (Lax 2014). Although Finland had no intention to support digital radio, relaxed regulation was introduced in 2011 and a simplified process of licensing broadcast stations in the Information Society Code of 2015. At the same time, Ireland has moved to centralize and strengthen broadcast radio and Denmark has tried to promote both DAB as well as commercial radio with specific regulation.

However, the ownership rules have allowed a consolidation of commercial radio both on the national and European level. German-based Bauer entered the UK radio market in 2007 through the acquisition of the radio division and further expanded in 2013 by buying Absolute Radio and Planet Rock digital stations. Now Bauer is the second largest private radio company in the UK with a very strong foothold in DAB radio. After the acquisition of SBS Discovery Radio in 2015 it became also the largest commercial radio group in the whole Europe. Bauer is the market leader in Poland, Sweden, Denmark and Finland and number two in Norway, but in the German market it is for the time being only a minor player operating just in Hamburg.

The World Wide Web has been developing not only side by side with radio but also in a complex interplay, which would require its own publication to be properly covered. In any case, by 2005, the Web had reached a new stage of development as a platform for commercial media use (Web 2.0). At that time it was by no means clear from the perspective of broadcast radio whether the new web-based digital music streaming services like Last FM (2002), Pandora (2006) and Spotify (2008) or the new platforms for publishing user generated content like podcasting (2004), YouTube (2005) and SoundCloud (2007) would be a bigger threat to radio. While channel concepts

based on music only may have become dated, broadcasters have been quite successful in adopting and embracing these as well as other social media platforms like Facebook (2004) and Twitter (2006) (Stiernstedt 2013) into their own activities. They have also set up their own radio portals, interactive mobile radio applications and online streaming services like the BBC iPlayer (2007) and Yle Areena (2007). The web is not simply substituting but complementing and enhancing the existing broadcast services – like FM radio.

Right after the original deadline for the digital switchover for television broadcasting in Europe had been passed in 2012, it turned out that another switchover is needed relatively soon. Against a fierce European opposition, the World Radio Communication Conference of 2012 (WRC-12) decided to reallocate more UHF band spectrum – so called 700 MHz band – for mobile use also in ITU Region 1 (Europe, Middle East and Africa). As this was confirmed at WRC-15, television broadcasting in Europe has to be fit into 30 percent smaller spectrum space by replacing DVB-T systems with DVB-T2 systems. The European Commission has proposed releasing the “second digital dividend” in the EU by 2020 (EC 2016). For example in Denmark the 700 MHz band is licensed for TV broadcasting until 2020, but by then it will be released for mobile broadband use.¹ Certain member states like Finland, Sweden, Germany and the UK have already set more ambitious goals. Finland and Sweden will release the 700 MHz band for mobile already in 2017: a rapid transition is possible partly because also VHF Band III frequencies are used for TV broadcasting.

European digital radio was introduced in a time when there was no real competition over the broadcast spectrum and the European broadcasters largely dominated spectrum planning for the ITU Region 1. So far, it has not decreased the amount of spectrum occupied by broadcast radio but vice versa. The only spectrum release provided by digital radio is the L-band, reallocated for mobile at WRC-15 because it had not been taken into digital radio use. Now television in Europe is facing an increasing global pressure to clear even more spectrum for mobile use: the USA and Canada are

both releasing also 600 MHz band and they – as well as Finland – support clearing the entire UHF for mobile use. Even the Commission would like to provide “flexibility” for the use of the UHF band in the EU (EC 2016). In the next decade, all this will have at least an indirect effect on the VHF III.

It is already agreed that there will be a Europe-wide review of UHF spectrum use by 2025, and it is obvious that the economic output of the spectrum used by digital radio will be also evaluated and compared for alternative uses. In case digital terrestrial television would not be completely extinct already right after 2030 (Ala-Fossi and Lax 2016), digital radio might have to share its current spectrum on VHF III - or to find more future-proof solutions on other bands.

Project context, data and methods

In 2005, when DAB had its 10-year anniversary, the DRACE group² launched a research project to study the technological landscape and the future of radio, related to previous studies of the development of DAB radio in the UK, Ireland, Denmark and Finland (Ala-Fossi & Jauert 2006); Lax et al., 2008), and a separate study of DAB in Canada (O’Neill 2007). On the basis of a mapping of all available – both existing and emerging – technologies for delivering radio or radio like services, and the development of theoretical framework for a socio-economic understanding of the technological development of radio, the research group wanted to find out how the future of radio was seen and understood by broadcasters, technology experts and other professionals working with the radio industry.

In the interviews the experts were asked to look forward ten years, inviting speculative responses, but the analysis of the interviews was intended to reveal which of the present competing technological options, they believed would succeed. The primary data of the study was 43 semi-structured expert interviews among public broadcasters (14), commercial or private broadcasters

(12), regulators (6), representatives of different economic or technological interest groups (5), network or multiplex operators (3), and 3 persons working for the media electronics industry. The respondents were all in senior managerial positions. The interview questions were designed to explore how the experts perceived the future of digital radio in terms of delivery technology, socio-economic issues, displaced technologies and medium content.

The research method of the study was qualitative content analysis of the recorded and transcribed interviews. For practical reasons, each member of the research group analysed their own research interviews conducted in their native language. The knowledge of different national contexts was crucial for this analysis.

The results of the 2015 study were compressed in Figure 1, describing the four scenarios. The location of each respondent in the scenario matrix is defined here according to x and y values between 0 and 2, allocated by the members of the research group, based on the evaluation of the respondent's opinions, choices and arguments (Ala-Fossi et al. 2008, 20)

[Figure 1 here]

The research set-up and the preliminary analysis and understanding of the development of digital technologies was based mainly on the social shaping of technology (SST) perspective (Mackay & Gillespie 1992; Winston 1998; MacKenzie & Wacjman 1999). According to this, technologies are always shaped by a combination of social, political and economic forces and processes. This is why their design and preferred forms of deployment will also match better with certain social, political or economic objectives and even exclude others. Some of the respondents' responses clearly reflected the consequences of the social forces underlying the development of digital radio. However, the respondents were asked to speculate on future developments starting, as it were, from today's technology and that is why we have also applied the

concepts of the diffusion of innovations theory (Rogers 2003). Despite their many fundamental differences, SST perspectives and the diffusion of innovations theory are not really antithetical and they both provide useful tools for analyzing the development - and also appropriation or adoption of new technologies (Lievrouw 2006, pp. 246-261).³

In 2013 some of the members of the DRACE group joined the HERA project: *Transnational Radio Encounters – Mediations of Nationality, Identity and Community through Radio* (TRE: 2013-2016: <http://www.transnationalradio.org/node/1>), and took part in one of the subprojects : IP2: *From public service broadcasting to public service media – challenges for European radio cultures*. The project explores how recent reconfigurations of public service broadcasting have altered structures of production, distribution and consumption, as well as the social, cultural and political consequences of these changes. This shift to digital production and distribution technologies has challenged the traditional national public service remits, and opened up opportunities for multi-platform combinations for radio. In 2014 the research group decided to reiterate the study from 2006, the future perspective being 2025. In order to make the two research projects comparable, the research set up was re-used: we interviewed the same experts as in 2006 – if possible. If not, the new people in the same or similar positions. The research questions, the methodology, the theoretical framing, the analytical procedures were all the same. The idea behind this comparative approach was to confront the two future studies, but not in details try to explain why the predictions in the 2015 study were accurate or the opposite. Instead we would again try to map different scenarios and the arguments behind them in the 2025 perspective.

In the 2025 study Canada is not included, but instead Germany is represented together with Denmark, Finland, Ireland and the UK. ⁴

The primary data of this study are 39 semi-structured expert interviews, which were carried out between September 2014 and March 2016 in: Denmark (11), Finland (9), Germany (8), Ireland (5) and the UK (6). Thirteen respondents were public broadcasters [14], 6 commercial or private broadcasters [12], 6 regulators [6], 7 representatives of different economic or technical interest groups[5] and 2 persons working for the media electronics industry [2]. The numbers in [brackets] are from the 2015 study.

Radio in 2025: Future Scenarios from National Perspectives (Q1, Q2 and Q3)

Each and every research interview began with the same basic question: (Q1) *how do you think people will receive radio content in your country in 2025?* Depending on the answer, the respondent was then asked (Q2) *to explain his/her opinion and to evaluate the role of terrestrial analog, terrestrial digital, satellite and Internet radio*, especially if they were not mentioned as parts of radio services in the first place. In addition, all the respondents were asked (Q3) *what will be the dominant way of delivering radio content in Europe?* Because both the interviews and their analysis have drawn on primarily national perspectives, the results are presented here following the same principle.

Denmark

A majority of the Danish respondents believed that traditional analogue FM radio will still exist in 2025 and probably be dominant, supplemented by DAB/DAB+ and IP-based platforms, incl. mobile networks in a varied mixture proportion. In 2012 a majority in the Danish Parliament decided, that the FM band would be closed at the end of 2019 in case it can be ascertained mid-2018 that at least 50 per cent of the radio listening, including in cars, takes place on digital platforms.⁵ In early 2016 it became clear that this scenario would not be realistic, since only 26 % of the radio listening in 2014 took place on digital platforms. Consequently the Media Agreement

was changed: the FM band will still exist, and when the digital radio listening reach 50 per cent, then the Parties behind the Agreement will decide when the FM band will be turned off.⁶

The regulators (2) and the distribution company representative (1) are hesitant when it comes to the question of a digital switchover of radio before 2025, mainly because of the media specifics of radio, not least the way people use radio in everyday life. So FM will still exist for a long time, in contrast to Danish television which went from analogue to digital in 2009. Only one (private broadcaster) thinks that FM will not exist in 2025, while the rest of the respondents are not sure about the mixture of the three dominating platforms. The public broadcasters (5) all believe in a balanced threefold situation in 2025 between FM, DAB/DAB+ and mobile broadband, and so does the representative from the manufacturers, even though she is doubtful whether FM will survive for 10 more years. A dominating trend among the respondents is the insecurity about the share of each distribution technology. A majority among the broadcasters believes that the FM band will count for less than 50%, followed by more or less equal shares between DAB/DAB+ and mobile broadband. A minority of the respondents are sceptical towards mobile broadband as distribution platform because of the restricted reach in many parts of the country, and because it is vulnerable in situation of crises, where it is necessary for the public authorities to reach the whole population, according to the contingency plan.

The Danish respondents agree that you cannot speak in general about a dominant trend in Europe from now and 10 years ahead. DAB (and DAB+) seems to be an expanding distribution platform in the UK, Norway and Denmark, but even though Norway has decided to make a switch over from FM to DAB – and put a date to it – most of the respondents are hesitant about a switch over. The majority shares the opinion that in those three countries DAB/DAB+ and FM will exist another 10 years from now. The diversity on this matter in Europe at the moment is the dominating trend. The countries and markets in Europe are very different, and there can be

different technical reasons for choosing different solutions. It can for instance be difficult to cover France without a terrestrial network. One of the regulators points to a European or EU solution on the distribution challenges – similar to the Television Directive. “Europe needs a Radio directive”, was the statement.

Finland

All (9) Finnish respondents agree, that traditional analogue FM radio still has a central role in Finland in 2025, although commercial broadcasters, regulators and distribution company representatives (4) also believe that FM radio will have a lower share of radio listening than today. Practically everybody also believed in a growing importance of internet/IP-based delivery platforms in some form. Especially the growth of podcasts /catch-up services / off-line-listening was anticipated by 6 respondents and at the same time 5 respondents thought that new generation mobile networks will turn out to be important digital delivery networks also for radio. Only 3 respondents saw that some kind of digital broadcast radio in 2025 could be possible at least in theory, while all the others thought this option was already completely excluded or at least extremely unlikely.

Five respondents think that digital radio does not have any prospects in Finland at least at the moment, because nobody is interested to promote it or invest in it. One public service broadcaster assumes commercial radio is unable to invest – at least with their current cost structure – while one commercial broadcaster claims that a more important reason is that a digital network investment would not help to improve the already high profitability of the business. Targeting the same audiences with a new network would be mostly waste of money.

Three respondents estimate that when the current FM licenses expire in 2019, analogue FM radio will still be such interesting business for the incumbent broadcasters that there will be more applicants and applications than frequencies and respective licenses to be granted. Six

respondents think that the development of digital radio delivery in Finland is tightly connected into building new IP-based mobile broadband networks and to those technological and economic decisions, which are made to secure the continuously growing mobile use of video contents. Three respondents saw that building a digital broadcast network in Finland would not be completely impossible, but they also thought this issue would not be on the agenda at least before Finland's Nordic neighbors had implemented their digital radio plans. None of the Finnish respondents thought that satellite radio would be a realistic option in Finland.

None of the respondents believe in the breakthrough of DAB- based or any other digital broadcast radio in Europe by 2025, but on the other hand, one respondent was pondering the possibility that countries, which had invested in digital radio would have started to shut them off by that year. However, DAB+ was widely believed to be important in some particular European countries like Norway, Denmark and the UK, but Norway as the only country which has officially decided about the intention to shut of (nationwide) FM is clearly a special case from a Finnish perspective: three respondents separately mentioned Norway as an exception.

Consequently, all the Finnish respondents believe that FM radio will remain important also on the European level – and in many countries, also as the most important delivery platform for radio. Two respondents brought up the fact that the European Union is not pushing politically for digitalization of radio and many economic factors still support the continuing existence of FM radio.

Almost all respondents agree also on that IP-based radio services, especially on mobile broadband networks will grow in the coming years throughout the entire Europe. However, there were big differences between the respondents how they estimated the growth and interpreted its significance and meaning. Two respondents think that new generation mobile networks could

eventually replace broadcast radio networks also in the whole Europe. Another two emphasized hybrid radio as a way to integrate the best features of both broadcast and IP-delivery as telecommunications networks alone are not capable to replace broadcast networks.

Germany

The German respondents (8) all agree that online distribution of radio will grow steadily during the next decade. In their prediction of tendencies there is a higher variation compared to the other countries in the study. Four respondents believe in a development from FM to online distribution, and they are skeptical about DAB because of the high establishing costs for a system, which in their opinion has proven unsatisfactory. One of the respondents predicts a 50% online distribution in 2025, and 25 % each for FM and DAB. Two respondents argue that DAB will be the future of radio, since it will not make sense economically to simulcast FM and DAB. Satellite radio is judged as chanceless in Germany due to many language barriers and different national radio cultures. The criticism of DAB relates to the lack of local coverage and also to the fact that it is considered unable to reproduce the current FM radio landscape.

Comparing the German situation with Europe, all respondents emphasize structural, topographical and/or regulatory differences between the countries. One of the private broadcasters consider these differences to be very large, and he insists that nowhere else the public service system has such a strong standing as in Germany, undermining private broadcasting. Another respondent from the private radio sector, points out that the regional closeness of radio programming in the German federal system does have advantages compared to other countries, but the heterogeneous regulation on the other side blocks a dynamic development compared for instance to regulation through Ofcom in the UK.

Among the German respondents you will find two oppositional evaluations of the future of radio. As a strong opponent of DAB, one respondent points out that Germany's spectrum of different FM programs was already very diverse so that DAB could not add very much, and thus failed to appear attractive enough to the listeners to induce a system switch. The proponent assumes that it is a matter of time until DAB will be established in all countries, possibly except for Finland where very low mobile traffic costs drive online distribution forward very strongly.

Ireland

All Irish respondents (5) believe that FM will still be a central mode of delivery alongside different combinations of digital delivery (DAB, Fixed line, Mobile). The commercial multiplex operator was the only respondent who proposed that DAB could be a significant part of the radio landscape by 2025. The regulator believes that FM will be central for some time to come with DAB potentially being relevant to only national services. All agree that IP delivered services are increasingly important. One respondent suggested that online delivery allows FM 'to leapfrog into the online world', calling into question the necessity of DAB. Two respondents pointed to the growth of listening via the 'Irish Radio Player' App., and a majority of the respondents all point to the increased importance of mobile reception. Additional channels, live interactivity via social media, personalized services, podcasting, on-demand and niche services are all seen as being important aspects of radio content development.

However, a digital radio development seems more or less to be kept on hold. For the commercial sector the present consumer satisfaction and limited competition are key reasons to keep with FM. For other respondents a continuation of FM is problematic as it is not an efficient use of spectrum, and is preventing additional services and licences becoming available. Three respondents all see DAB+ as the likely or inevitable subject to regulatory intervention, due to its

perceived technological superiority to DAB and DRM, but a forced intervention by national or EU initiatives needs a clarification of how to cover the costs. Another issue in the present Irish radio landscape is the claimed competition between the public and the private sector. The latter claims that RTE's additional developed DAB channels represent additional competition to their core channels. None of the respondents see a role for satellite as a distribution system in the national market, but maybe as a potential for a collaborative pan-European broadcasting by EBU members. All of the respondents see IP based radio as being an important part of the mix of radio platforms. All proposed that IP based radio enabled development in terms of podcasting, personalization, interactivity, on-demand listening and niche channels that were complementary to the core linear services, and one respondent proposed that the varied expanded services could all be incorporated into DAB.

Whereas all respondents foresee hybrid delivery systems, three respondents were all in agreement that DAB+ would likely to be a dominant mode of delivery across Europe, but when that would be the case was less clear. Two respondents proposed that the digital terrestrial transmission standard remained open and that analogue switch off was not an imminent prospect. FM will still have significant presence across Europe.

The UK

All UK respondents (6) suggest that broadcast radio will continue as an important medium. DAB/DAB+ will grow, but FM will remain. In combination these two platforms will dominate radio listening, with online growing, but still a smaller part of listening. Commercial radio companies, some of which were ambivalent about DAB in 2006, are now committed to DAB. Small-scale trials of software-driven DAB transmissions appear to be successful, and suggest a

cheaper way for small commercial and community stations to get onto a digital broadcast platform. (See Hallett's article in this symposium.)

All respondents said terrestrial broadcasting will be the most important form for the delivery of radio. All believed that FM would still be running and all but one that there had been no switchover in 2025. One believed that the process of switchover would have begun, that is, some stations (the BBC national stations, perhaps the largest national commercial stations) might be digital-only (DAB or DAB+) by then. One thought that listening share and market penetration of DAB/DAB+ would have reached the stage where switchover decisions would have been announced (even before 2020). One was alone in believing that by 2025 all UK national stations would have migrated to DAB/DAB+ only, and small and community stations only would be on FM. Live, linear broadcast radio retained a simplicity for listeners; online internet radio, or music streaming services, required a degree of user engagement that radio did not, and that made radio unique and helped ensure its place in listening share. Coverage is increasing, following industry and government agreement on building new transmitters, but there is a sense that DAB coverage may never fully match FM, for cost reasons. Rural coverage of local stations would also continue to be a problem. This was referred to by several respondents.

Most thought IP/broadband/online would remain a smaller, but growing part of listening. Online's increasing share would be driven by catch-up services, some by podcasting. The BBC representative said that the smartphone would become increasingly the focus of listening and so hybrid radio (as envisaged by EBU) would be essential to that. Other respondents were less convinced about the importance of the smartphone for radio listening. Satellite was hardly mentioned, and was considered irrelevant to the UK (and to Europe generally).

The most striking difference between the 2015 and the 2025 study is the reduction of digital distribution platform alternatives to DAB/DAB+ in the five countries, combined with a

belief in the growth of the use of mobile broadband for personalized services. However, the most distinctive difference is the still strong belief in the continuation of the FM band, even though the uses of radio and audio will continue to spread to different (social) media and distribution platforms.

Likely winning and losing systems (Q4, Q5)

After outlining their views on the future of radio, each respondent was asked (Q4) *why they thought so and to explain their arguments by exploring the following perspectives: regulation, ownership, market penetration, economic issues, production practices, geographic coverage area, functionality and user practices*. The research team had used the same set of eight different perspectives in its preliminary socio-economic study on the delivery technologies. However, as they were not strictly defined during the interviews, the perspectives worked here more as an inspiration than an instruction for the respondents. In addition, the respondents were asked to (Q5) *name technologies, which will not be dominant in the future, but would be still in use*.

There was a wide variety of opinions about the role and impact of regulation among the respondents as it was the case in the 2015 study. But especially the Danish and the UK respondents agreed that the decisions and conditions about the switchover from FM to DAB will be an essential element in the regulatory debates in those two countries and in Norway as well. All the respondents did not find a total switchover, meaning a complete shut-down of the FM net, likely within the next ten years – not even in Norway. Some of the respondents questioned whether the regulatory processes will be guided by ‘market-led’ or ‘consumer-led’ criteria, but maybe the BBC and DR would be asked by the governments to begin migration because of the transmission costs alone? Some of the Danish respondents saw the decision in Denmark to establish the DAB-3 mux in 2016 for commercial operators only as an economical incentive for the commercial radio sector, that could have an influence on the migration process.

In the countries where a switchover is not on the agenda (Finland, Germany and Ireland) most respondents commented on the general need for European regulation initiatives. The Irish respondents did not foresee any immediate steps of a further development of DAB in their country, but when or if a decision in the UK for an analogue switch off is taken this would be a major incentive for the commercial sector in Ireland to engage with the developments. In Finland five respondents found communications policy decisions made in Finland having significant effects on shaping the future of radio different than elsewhere in Europe. At the same time, the Finnish respondents think that the fragmented digital radio development in Europe is caused by the unwillingness of the European Union and its member states to do any political decisions supporting or promoting the digitalization of radio, indirectly pointing to the need of a Radio Directive. This is in line with the German respondents, who saw the construction of the German radio landscape with nine federal broadcasting institutions (Landesrundfunkanstalten) as an obstacle for a more unified, national regulatory intervention and pointed to the need of a common EU radio policy initiative. A majority of all respondents reminded that European radio operators do not currently have any kind of economic incentive for ending the use of the FM band.

In general the ownership of technologies does not really matter much for the visions of the future development of radio, and just a very few of the respondents commented directly on this. But for some the continuously strong market position of FM radio as well as the relatively slow development and growth of digital radio (DAB) was considered important factors. However - when the FM distribution is either replaced or supplemented with DAB/DAB+, the gate keeper model for administrating the multiplexes may cause problems, because the gate keeper is a new link between the broadcaster and the audiences. Will such a model be in favor of market-led initiatives or audience-driven (minority) needs or interests, some of the regulators among the respondents asked?

In spite of the growing market penetration of DAB in the three countries ahead (Denmark, Norway and the UK) further expansion of this delivery platform has not yet resulted in significant growth rates in Europe. Some of the respondents explain the longevity of FM radio by its economic importance. In Finland advertising on FM radio is still about 90-85 per cent of commercial radio turnover in spite of the share of web advertising and other new services is continuously growing. And even if the income from the web would surpass income from radio advertising already in the near future there is no particular reason for abandoning FM radio as long as web services and broadcast FM radio services are well complementing each other. Some of the most important competitors for FM radio in the near future is international music services like Spotify, which will put a pressure on radio to maintain and develop music formats. But as long as you can offer national quality content (theme channels), you will have a chance to survive. Related to that the Finnish and the Danish respondents also emphasized hybrid radio as an important future possibility, since it is a way to integrate the best features of both broadcast and IP-delivery. Most important it provides the ability for targeted advertising, based on the identification of the user and/or the location.

In small markets the question of the future media economy is most insecure and hard for the respondents to predict. If there are not a sufficient number of users, will the growing number of commercial channels on DAB be able to survive? In an international perspective DAB is still a niche product, but even though also mobile reception will grow, it will not make the small market limitation go away. Some of the Danish respondents believe that more income will derive from non-traditional revenue and less from spot-sales. Here radio has an advantage compared to other media: sponsorships, promotions activities, integrated with social media, will attract listeners. Also the option for advertising customers to get access to or be part of theme oriented radio productions (AFP – advertiser funded programs) will grow rapidly in the future. Transmission costs were also

highlighted especially in relation to the foreseeable dual or threefold situation (FM, DAB and DAB+) for a longer period, but the more accurate expenses will depend of the growth of DAB/DAB+ in Europe, and not least in Asia and Australia, influencing on the price level for transmission and receiver equipment.

Geographical coverage of digital delivery is still an important issue compared with the FM distribution. In Finland both DVB-T2 and mobile networks are not able to cover indoor reception in a sufficient matter, and in the other countries DAB is not suitable for local/regional coverage, and therefore DAB+ seems to be the immediate solution for that, decided already in Denmark and Germany. Some of the Finnish respondents mentioned the possibility of building one-purpose (broadcast) networks and the functionality of dedicated receivers. Even though hybrid radio was seen as a distant but possible solution of the coverage challenge, the respondents argued that it depends on the solution of universal broadband coverage in each country, supplied with smartphones or other portable units with DAB chips, excluding the still high data transmission costs for the consumer.

The German respondents agreed that expenditures for staff will not drop in the future, because of the tri-medial and personalized content, but rather rise, since content has to be edited in more complex ways, workflows will become more complicated, for instance in relation to metadata. All in all these challenges will call for new competences, combined in one person. They also agree that personalisation and automatisisation of radio content delivery will play a big role in the future with apps and platforms offering content that suits the individual listener desires. But also the lean-back attitude will survive, where the listener will use what is offered on (broadcast) radio or streaming services. Also the integration of social media in radio programming seems to be a growing tendency. The majority of the Danish respondents agree that the lean-back attitude will still exist in 2025, but the dominant type will be the lean-forward users, who more actively will seek for

the type of content they want – and from specific sources, piecing together content from different platforms, e.g.: news on the radio + background material on the web + listener interaction /debates on the programs Facebook profile etc. The Finnish respondents addressed the changing user practices especially among the younger generations. They were seen mostly as a threat to radio media. Some respondents referred to YouTube as a substitute for radio as well as an increasing dominance of video and multitasking, while others believed that the inescapable increase of the use of telecom networks and mobile devices are taking the foothold from radio. Nobody directly believed that radio would be increasing its importance as the source of information and entertainment in the everyday life of ordinary people.

On the question (5) of *other technologies, which will not be dominant in the future, but would be still in use*, online was universally regarded as existing alongside broadcast. Just a very few respondents believed it would have overtaken broadcast in ten years, but all suggested that online's share of listening would be growing. In Denmark the combination of FM broadcasting with DAB/DAB+ and the expansion of mobile broadband coverage is a clear vision for the next decade, but just a few had the courage to predict the ratio among them, but for the majority it seemed most likely that in 2015 you would have a balanced situation (a 50-50 share) between FM and digital delivery. The Irish respondents agreed that other technologies would be in use and a hybrid system was likely to persist in Europe. The broadcasters saw the Radio Player app as the significant mode of delivery in the online environment. In Finland the respondents saw hybrid radio as part of the future of radio, but Radio DNS as a hybrid radio concept did not really interest anyone among the respondents. Commercial radio respondents have difficulties to understand how it could generate any new business or income, while public service broadcasters are not convinced about its ability to create added value for the end user.

In comparison with the 2015 study the responses in the 2025 study above all reflects the ongoing differences among the five countries in relation to national strategies and policy, economy etc. But a new trend in the 2025 study is the online distribution as the most important alongside broadcasting, pointing to the growing use of on-demand features, but – still alongside and not replacing linear forms of distribution.

What will be on the Radio(s) in 2025? (Q6, Q7)

The last two questions deal with the content provided to the audiences: *What will be the content, what are the listeners/users going to be doing – and why do you think it will be like this?* All the respondents agreed that traditional linear live services will form the core of radio content in the near future, both on FM and also on DAB/DAB+, the latter options mainly in countries already engaged in digital radio: Norway, Denmark, The UK, and to some extent Germany and Ireland, and if - only on a national level, even though there seems to be new options for the use of DAB for community radio. [See Hallett’s article in this symposium]. The values of ‘traditional’ broadcast radio has proven more resistant to the digital developments and the on demand features, related to radio content, offered on new distribution platforms, compared to the predictions in the 2015 study. Some of the respondents in the 2025 study highlight the special quality of broadcast radio being entangled in the everyday routines: news, weather and traffic information in the morning before leaving home, on the road, and coming home (late) afternoon and preparing dinner in the kitchen with radio as a background/foreground companion. Digital radio and radio on-demand represents in this sense extended options, but of course also alternatives. The Irish respondents infer that national, regional and local services that continue to evoke co-presence, community and proximity are likely to persist as preferred content, both in analogue and digital context. Social media use and on demand options propels the need for increased visualization, since radio content is often accessed across visual gateways. The UK respondents all agree that linear

radio will continue, that music will dominate and presenters will still be important. All six Finnish respondents and the majority of the Danish and German respondents are in line with the Irish in believing in the growth of different sorts of personalized radio content services. For instance using new ways of compiling existing radio content into playlist-packages which could then be shared via social media platforms. Expectations for the rise of completely new forms of radio content are relatively low. Some of the German respondents stress the public service radio's challenge to make archived content accessible by enhancing the present unsatisfying usability of their archived material (Mediathek), and forming special channels with recording of classical music, children's programs etc. Some of the UK respondents believes that regulation of content will be withdrawn bit by bit, so content is likely to be completely unregulated by 2025, except for speech radio that will be the sole domain of public service radio – the BBC. Finally – two of the Finnish respondents reminded that the contents of radio as well as its audiences should not be considered as separate “islands”, as changes always happens through interaction between all forms of media and its use. The dominating trend in the answers about the future content is a belief in a sort of balance in the ways the audiences are using radio. Analog terrestrial radio will still play a major role in 2025, supplemented by the digital (DAB/DAB+) transmission as an expanding option, mainly in the UK and Denmark and partly in Germany. In Finland, having abandoned terrestrial digital distribution years ago, mobile broadband delivery is mentioned as the dominating alternative. A majority of the respondents accentuates mobile broadband as an increasingly important distribution platform, especially suitable for the varieties of personalized, tailored audio and radio content, but still not technologically fully developed as a nationwide alternative to the existing analog and digital services

Future scenarios for the radio media in 2025

Most respondents believed that analogue terrestrial FM broadcasting will remain an important if not the dominant form of radio in their home countries in 2025. Although only very few expected any switchover from analogue to digital radio broadcasting to take place within the next decade, DAB/DAB+ was seen as important in Britain and Denmark and to some extent also in Germany and Ireland, but not in Finland. When compared to the situation ten years earlier, these two main broadcast platforms are no longer expected to be supplemented with other digital broadcasting platforms (eg. DRM, DMB or DVB-H), but with digital radio and audio services on IP-based networks, especially mobile broadband (4G, 5G).

Although the status of DAB/DAB+ as the most important digital broadcasting platform is in this way now less challenged, the European respondents still did not agree on any single dominant digital audio delivery platform. While almost everybody now share a certain tripartite vision of the future of radio (analogue & digital broadcasting + IP), there are diverse interpretations about the digital part of this combination based on each national context. The main questions are not whether the new IP – based services will grow, but how much they will grow – and whether there is a role left for DAB/DAB+ in the national media policies.

[Figure 2 here]

Subtext: The 2015 scenario percentages in brackets.

As the development trends in adoption of radio delivery technologies and the development of radio content consumption have both remained very important and highly uncertain issues, we have used them as variables in creating a scenario matrix to describe four different future scenarios for radio media in a similar fashion as in our previous study (Ala-Fossi et al. 2008). So the *X* axis indicates again the options in delivery technologies, while the *Y* axis describes the tendencies in radio and audio content consumption. The categorization of the respondents in to four scenario

groups (and later their allocation in the scenario matrix) is made the members of the research group, based on the respondents answers on the questions on both the development and adoption of delivery technologies (Q1 - Q5) and about radio content and its consumption (Q6 - Q7) just as in our earlier study. However, the titles of the scenarios are not the same as ten years earlier. Using the same names would have incorrectly suggested that the current future scenarios would be identical with the previous ones, so for the time being we identify the four scenarios only with letters from A to D/ so we have changed or updated the names accordingly. In addition, the descriptions of the variables have been updated to better match with the latest interviewee responses.

"Towers of Babel" is the the most similar to the present situation, where free analogue broadcast delivery and real time consumption of live (or otherwise linear) audio content are still the most important ways to produce and to use radio. Traditional broadcast operators are still offering the majority of the services. In addition, there are services using other technologies, but none of them has a really dominant position anywhere. The delivery technology variable has been adjusted here to reflect diversity of technologies in general instead of just digital diversity, partly because of the widespread belief on continuing importance of FM radio also in 2025. In the scenario *"A DAB handful"* (= *belief in DAB/DAB+*) free broadcast delivery and real time consumption of live or linear audio content also remain the most important forms of radio. Again, traditional broadcasters deliver most of the services. However, besides analogue radio there is growing digital radio with a clearly dominant technology or a combination of digital technologies (e.g. DAB/DAB+). Again, the delivery technology variable has been slightly adjusted to reflect the diminished selection and projected future role of supplementary broadcast systems. *Digital Diversity 2.0* suggests that radio delivery has very distinct national digital solutions and in some cases, linear broadcast radio-type audio may be just a fraction of the services available. While the content consumption variable emphasizes now here more personalization instead of multimedia, subscription and on-demand

audio services provided by producers other than broadcasters are gradually increasing and becoming at least as important as traditional broadcast audio. In the scenario “*Hybrid Heaven*” digital radio is growing with one dominant technology or group of technologies, which are now more likely to be IP-based networks (eg. 4G and 5G mobile broadband) than dedicated broadcast networks, and the role of traditional broadcast radio operators is diminishing. On-demand audio offered by non-broadcasters is also becoming as significant as traditional broadcast audio.

Although the future scenario, produced in 2005 and 2025 are not identical, we have used the same questions and the same variables so it makes sense to examine the current set of scenarios in the context of the previous set of scenarios. Two trends are obvious when comparing the 2015 and 2025 scenarios: 1) the proportional share of the respondents, who expect distinct national solutions for digital radio, which may or may not be based on digital broadcasting, has increased significantly, while the number of supporters of all other scenarios has decreased. 2) Despite the trust on the continuing importance of FM platform, the share of respondents who would like to think the next decade primarily as an extension of the present has decreased the most.

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Notes

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² DRACE is an international research group comprising communication scholars and radio professionals in Denmark, Finland, Norway, Ireland, and the United Kingdom. The original research builds on initial studies of the use of websites in radio and the evolution of DAB as a digital platform, to a wider consideration of the emerging technological landscapes of radio and overall patterns of access and participation in the digital environment. [www.drace.org]

³ The above description of the 2005 study is based on the introduction Ala-Fossi M, Lax S, O'Neill B, Jauert P and Shaw H (2008) The Future of Radio is Still Digital - But Which One? Expert Perspectives and Future Scenarios for the Radio Media in 2015. *Journal of Radio and Audio Media*, Vol 15, No. 1. pp. 4–25.

⁴ Four of the five members of the TRE research group (IP 2) is also taking part in a related European research project: Broadcasting the the Post-Broadcast Era. <http://www.uta.fi/cmt/post-broadcast/index.html>

⁵ Mediaaftalen 2012-2014 [The Media Agreement] <http://slks.dk/medier/tv/tidligere-mediaaftaler/mediaaftalen-for-2012-2014/>

⁶ Press release about the postponing of the close down of the FM band, April 28, 2015. <http://kum.dk/nyheder-og-presse/pressemeddelelser/nyheder/lukning-af-fm-baandet-kan-udskydes/1/1/>