

**'The Roll Out of Digital Audio Broadcasting in Ireland  
and  
Explorations into the Future Radio Landscape'**

**Study submitted in part fulfillment of the requirement for the award of  
BSc. in Multimedia**

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## Abstract:

The Irish radio landscape is changing. We are on the eve of Analogue Switch Off for Television, which will leave frequencies clear, for both Digital Audio Broadcasting and for a 4G mobile network. These two things may change the way audio content is broadcast and consumed. With the help of fourteen radio industry professionals, looking at the Public Service Broadcasting and Commercial sectors as well as the technologies they may be using shortly, this study looks at the uncertainty that faces Irish broadcasters as they look to explore a new means of transmission and the hurdles they face in a quest for a standardized format.

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## Chapter 1: Introduction

On October 17<sup>th</sup> 2011, Director General of RTÉ, Noel Curran, delivered a speech on 'The Future of Public Service Media in Ireland' ([www.rte.ie](http://www.rte.ie)). During the course of his speech, he mentioned the switchover to Digital Terrestrial Television (DTT) and the analogue switch off of television services and the 'complexity of the broadcasting and media landscape that faces us all as we look ahead to the future.' (Page 7)

He also stated that 'Advances in digital technology have not been restricted to the online world; the television market in Ireland has seen an exponential increase in digital television available to Irish audiences over the past number of years.' (Page 8). The majority of his speech looked at DTT and RTÉ's journalistic policies. Mr. Curran stated that 'radio listening in general in Ireland remains robust' (Page 7) and also that 'RTÉ has led the innovation and established the potential of digital radio in Ireland. This has allowed more channels, more choice and more control for the listener in how and when they access our radio content.' (Page 32)

In September 2009, as a multimedia student in DCU, I broadcast my first radio show on DCUfm ([www.dcufm.com](http://www.dcufm.com)), this arts and culture show, Culture Cafe, was broadcast online and the show received feedback from all over the world. Although DCUfm only broadcast online, the feedback from listeners around the world, through email and Twitter ([twitter.com](http://twitter.com)) were a great boost. This feedback then allowed me, as presenter/producer to secure interviews with higher profile musicians and guests.

July 2011 saw Culture Cafe move to a new radio home, RTÉ 2XM. This is a voluntary position and RTÉ 2XM broadcasts on DAB and online through the RTÉ player. (<http://www.rte.ie/digitalradio/2xm/>) When the show started, I told my extended family, friends and my godparents but the reaction to hearing that the show was on DAB was that they couldn't receive it in their part of the country. When I mentioned that the show could be listened to online, the reaction seemed to be that, going online to listen to radio was not something they would do and they would possibly struggle in their attempts to find it.

The aim of my thesis to provide a fair, unbiased snapshot into digital radio in Ireland as it currently stands. This is an exciting time as we are on the eve of new DAB/DAB+ trials, just months before the Analogue Switch Off for television, which could lead us to a wide spread Analogue Switch Off for radio.

## Chapter 2: Literature Review

The way audiences consume media has changed. Our Convergence Culture means that devices like our phones are now able to perform more than one task. Smartphones can now enable the user to surf the internet, listen to radio and perform office tasks. In 1983, Ithiel de Sola Pool was one of the first to explain convergence in his book 'Technologies of Freedom' (P10 cited in Jenkins)

'A process called the “convergence of modes” is blurring the lines between media, even between point to point communications, such as the post, telephone and telegraph, and mass communications, such as press, radio and television. A single physical means – be it wires cables or airwaves – may carry services that in the past were provided in separate ways. Conversely a service that was provided in the past by any one medium – be it broadcasting, the press or telephony – can now be provided in different physical ways. So the one to one relationship that used to exist between a medium and its use is eroding.'

Jenkins himself then explains how different forms of media are placing themselves within this convergence through technology.

'For the foreseeable future, convergence will be kind of a kludge - a jerry-rigged relationship among different media technologies – rather than a fully integrated system. Right now, the cultural shifts, the legal battles and the economic consolidations that are fueling media convergence are preceding shifts in technological infrastructure. How these various transitions unfold will determine the balance of power in the next media era.'

(Page 17)

In 'New Infotainment technologies in the home', the topic of entertainment as the driver of New Information Technology is addressed. 'It is a truism that entertainment will be the driver that at long last creates adequate market demand for advanced information technologies in the home'. (Page 91) New technological advancement in home theatre systems and the convergence of radio and television services through companies like UPC ([www.upc.ie](http://www.upc.ie)) seems to support 'entertainment based “killer applications” theory.

In this book, it is pointed out that

'one of the factors that will help determine how consumers respond to the potential of advanced information technology is the way the media cover the “the information technology story’, which helps set the public agenda for the topic.’ (Page 94)

This is interesting where DAB radio is concerned. In the UK, DAB radio is being embraced, while here in Ireland there has never been any mainstream media push or very positive news stories to promote DAB radio.

One of the points Jenkins makes is how easy it has become for the consumer to create media.

“We’re in a moment of time in which there’s been an explosion of new media technologies which makes it possible for the average person to archive, annotate, recreate, recirculate media, to create their own blogs, to create their own podcasts, to sample, retool, media in a variety of ways. This is an enormously empowering moment.. there has always been an urge to create media but never before have we had such a powerful platform for the distribution for amateur produced media.” (2007)

Leila Green states that

'Both media vehicles (broadcasting and the Internet) may be positioned as popular, leisure and domestic, and both may involve considerable resources in time and money, but there are significant differences. The most glaringly obvious is that the consumption of popular media involves the active creation of meaning from products involved, but does not concern creation of meaning from the products. In contrast, consumers are often the co-creators of the culture they consume in many Internet technocultural domains' (Page 160)

This could be taken as the listener of a radio show, listening online, interacting with the presenter through Twitter or Facebook requesting songs or commenting on certain topics. These listeners are not just listeners, they are also helping create the content that they are now listening to.

As digital and internet technology becomes faster and more mobile, 'thanks both to new technology and hardware such as proliferating wireless Internet systems and portable MP3 players' (Ala-Fossi et al), where people are listening to radio has changed as has the traditional linear format of radio, thanks to podcasting and timeshift players. Norie Neumar explains the difference between radio time and internet time.

'broadcast radio has its own timeslot – a time of day and all that goes with that – a whole affective or emotional microclimate and locus of encounter where listeners may feel themselves to be part of a listening community. While re-'broadcast' as audio-on-demand is becoming more common, as well as Podcasting, both of these bypass the pleasures as well as the exigencies of timeslot. Timeslot involves a specific duration – 'real-time' that is not alterable on demand. And there is also something further that is fundamentally different about time in a radiophonic work as compared to an internet work – something within the work itself, often identified with its 'linearity'. (p 214)

This indicates while the listener maybe able to listen in what seems like real time, reality is fractured as they cannot partake in any discussions, competitions or interactions that maybe taking place between the presenter and the consumer. An example of how this would work would be Rick O'Shea's daily radio show on RTÉ 2FM, where Rick embraces Twitter asking followers, before his show commences, what stories he should cover that day. During his show he then uses 'Re-Tweets' to show his listeners some of the feedback he has received.

To discover what impact a change to digital radio would have in Ireland, we must look elsewhere to see how other countries implemented changes. Del Blanco states that in Brazil 'For the past 10 years, government, radio broadcasting stations, and sectors of civil society have been discussing which technology of digital transmission (IBOC, DRM, or DAB) is to be adopted in the country, without coming to a consensus'. This echoes the current problem in Europe where France have , 'officially adopted DMB-A a radio-focused variant of the Eureka-147 T-DMB multimedia broadcasting standard.' (www.rwonline.com)

However the roll out for this service stopped and the CSA which regulates broadcasting in France is now to ask the Ministry of Industry to adopt Eureka-147 DAB alongside the original proposal. This means

there are is more than one standard, much akin to a videos PAL and Secam variants.

In his article 'DAB Eureka-147: a European vision for digital radio', Brian O'Neil explains that the 'The digitalization of broadcast transmission systems had been an important and ongoing theme of engineering research for an extensive period of time.', mentioning NICAM stereo sound for television in the 1970s and satellite radio technologies in the 1980s' (Page 264).

O'Neill mentions that

'Two essential ingredients of the system were in development prior to the formal organization of the Eureka consortium: the audio compression or bitrate reduction system, pioneered by IRT in Germany (MPEG Audio Layer II, originally called MUSICAM), and a new radio frequency modulation system (Coded Orthogonal Frequency Division Multiplex, COFDM) led by the Centre Commun in France.' (Page 266)

Gandy (2003) is cited as saying 'the DAB bitstream could be used to transmit all kinds of data including images and slow-scan television'. Following the adoption of DAB as the 'single European standard' (Page 266), recent developments included the 'development of the related digital multimedia broadcasting system (DMB) and the adoption of an improved audio codec in a revised DAB? Specification' (Page 267)

In his paper Digital Audio Broadcasting in Canada: Technology and Policy in the Transition to Digital Radio, Brian O'Neill states:

'DAB's progress has been slow, however, in part due to sluggish governmental and regulatory support, the initial unavailability of affordable receivers, and the general lack of enthusiasm on the part of service providers to take advantage of DAB's potential for value-added content. The United Kingdom is the leading exception to this, where there has been wider market acceptance of the standard and strong incentives for content providers to develop DAB-only services. However, the decision of YLE, the Finnish public broadcaster, to shut down its DAB network in 2005 sent a warning signal to the broadcast world that DAB long-term may not be the only digital solution.' (Page 73)

When DAB was introduced in 1995 there was 'expectation that the superior new digital radio system would replace analog FM radio in a relatively short and smooth transition from analog to digital audio broadcasting (Kozamernik, 1995; Mykkänen, 1995; O'Leary, 1993) (cited in *In The Future of Radio is still Digital – But which One*, (Ala-Fossi et al)

It also points out that regulation is a great factor as 'the varied success of DAB has been highly dependent on different policy decisions made by national governments and broadcasters.'

The article also states that 'as government and the public service broadcaster have both been committed to DAB, as in the UK and Denmark, it has been possible also to pull the commercial radio sector in with economic incentives or regulation—or both.

In DAB in the UK, Starkey points out that 'market leading local commercial stations' were

'offered FM licensees an automatic renewal of their FM licences if they financed the DAB simulcast, and licensees willingly took up the offer because it removed the risk of losing the potentially lucrative FM licence to a rival in a subsequent bidding war'.  
(Page 168)

He also mentions that 'the availability of an almost infinite number of attractive alternatives presents DAB radio with considerable competition.' This was partly down to 'significant problems' with the DAB transmission network as loss of coverage, meant a complete loss of transmission. With FM or AM, the listener would suffer, 'temporary deterioration.' (Page 170)

The broadcast method for DAB would be a new trial for broadcasters, several radio channels would be broadcast through an ensemble or multiplex setting. Riley is cited in O'Neill's paper saying that this would facilitate 'typically up to six stereo stations' (Page 268)

However, Guy Starkey states that the 'essential' problem with DAB is that it uses the Eureka 147 which is encoded as MP2 describing it as 'twentieth century technology.' The development of MP3 and MP4, which DAB+ uses 'promises more reliable encoding within existing bandwidths and enhanced additivity.' (Page 171). This has led to one of the greatest reasons for the slow adoption of the digital platform as there is 'total incompatibility with almost every existing model of DAB receiver' as DAB is not forward compatible. This would lead to



'seriously alienating all those early adopters and other consumers who have bought into a technology expecting it to last a reasonable enough length of time to justify their capital outlay'.

Another problem that existed with a multiplex set up for smaller stations and community services was that they 'hoped that digital broadcasting would offer more secure access to the mass-media market were sorely disappointed to discover that the transmission pattern and licensing structure would not favour their type of radio (Lax 2008; Rudin 2004) (Page 268 cited in O'Neill)

The speed at which technologies change and the slow introduction of DAB means other digital platforms now exist, including Digital Radio Mondiale (DRM) which was originally 'developed for a digital switchover of AM radio broadcasting. However, in 2005 the World DAB Forum and DRM consortium set up a project to enhance DRM for the FM band also (DRMC) (Hallet, 2005).

Starkey describes how DRM works: 'Instead of using a dedicated broadcast band, it occupies frequencies within the existing AM or short wave bands, providing near-FM quality but doing so over the far greater distances achievable by radio transmissions of these wavelengths.' (Page 176)

In 2010 the Radio Spectrum Policy Group decided that a new study was needed regarding Digital Radio Broadcasting in Europe. Its results form 'The future of radio broadcasting in Europe Identified needs, opportunities and possible ways forward.' 24 EU member states replied to the questionnaire sent. From the replies, it states that,

'in all cases where progress is being made there has been a political interest, both in the sense that the issue has been high up on the political agenda for discussion, and that the discussion in itself has encompassed issues such as a switch-off date' (Page 6)

The second point was that there was 'close cooperation between the regulator and broadcasters/market interests', with only Denmark and the U.K. reaching an 'encouraging market share'. The findings also states that the most important thing towards the "success" of Digital Radio is the informational part,

issuing adequate information to consumers. It is here important to highlight the importance of defining consumer protection in a context of a fast evolving technology and lack of EU-wide solution.' (Page 6)

The findings also broach the subject of FM and how the sound quality is 'considered satisfactory the lack of frequencies hinders further developments.' It also states that 'In the medium to long term FM broadcasting can be replaced or supplemented by a digital technology, in order to overcome the lack of frequencies for FM radio.'

Despite the development of digital radio the findings of the report indicate that 'There is no indication of any progress anywhere to cease analogue radio in the foreseeable future.' The report also mentions there isn't a decline in the sales of analogue radio receivers and that 'There is no budget or fiscal assistance for listeners to accelerate migration to complete digital reception.' A digital switchover may be a long term plan for broadcasters to persuade listeners to listen on a digital platform but the popularity of radio receivers is because the market has 'adopted the common modulation standards that can produce attractive, low terminal cost. In other words, FM radios are cheap and work everywhere.

A number of things arose from this report which are believed to be important to 'stimulate the development of radio Broadcasting in Europe' (Page 8) including:

- ✧ Digital Radio Mondiale provides a standard or 'flexible combination of standard... Promoting one standard or a combination of standards should give the courage and clarity needed for the transition to digital terrestrial radio broadcasting. '
- ✧ Satellite Action Plan regulatory Group believes the emergence of satellite-delivered services could further develop Radio Broadcasting.
- ✧ European Telecommunications Standardisations Institute states that  

'A co-ordinated approach to transmission digitisation across Europe would assist all member states with increased certainty over the future of radio and provide the necessary volumes for consumer device manufacturers to invest appropriately for affordable and effective devices for all the diverse needs of radio listeners.'
- ✧ Ericsson replied to the questionnaire stating that they would:

'review all the complementary and alternative innovative digital multimedia and broadcasting technologies available, without excluding nor ignoring some of the more advanced IP based digital systems, allowing for proposals from outside of the traditional mainstream technologies of the broadcasting industry.'

The report also mentions that 'A larger market for digital radio receivers (including in-car receivers) could be beneficial.' (Page 11)

Athena Media were responsible for completing 'Irish Broadcasting Landscape: Economic and Environmental Review for the Broadcasting Authority of Ireland (BAI)' in 2010, their conclusions on digital radio supported a need for a 'combined PSB and commercial sector DAB+ trial, an independent cross-sector digital radio forum and a digital radio white paper.' (Page 65) They also point out that 'Digital platforms left solely to the PSB provider to service have proven weak across Europe'. Their findings for radio end with recognition of the 'current recessionary period' and how

'commercial operators do not see the benefit of investing in digital but the coming two to three years could be used for combined planning and preparation work under the auspices of the BAI to ensure the radio sector is empowered to move forward and plan for the positive opportunities which digital can provide both in terms of services and market.'

## Chapter 3: Methodology:

In this chapter I discuss how I conducted research for my thesis. In my original proposal (Appendix F), I mentioned that I would use a mixed method of qualitative and quantitative methods of research. As my original idea was too broad for this study, I decided to that it was an important time for Irish radio and how broadcasting, as we currently know it, will work in the future.

I approached my research from a Qualitative approach, taking a Interpretive viewpoint. I felt that this was the best research method for my thesis as I wanted to get a detailed description of the attitudes towards digital radio in the Irish radio industry today.

Deacon states

'Advocates of interpretive research place particular emphasis on the ethnographic practices developed by anthropologists, where the researcher immerses herself in a particular social setting, getting to know people intimately and talking to them at length about how they see the world and themselves' (Page 6)

I felt the best way to achieve that was to interview individuals from a number of different organisations and build a rounder picture from that. I interviewed fourteen people in total, taking in public service broadcasters, both national and community, as well as people working in the area of IP (internet) and satellite broadcasting. A full list and justification of interviewees can be found in Appendix A, all interview transcripts can be found in Appendix B. I also communicated with government authorities, screenshots of this communication can be found in Appendix E.

As my research progressed, I became more aware of items which concerned broadcasters, as with, 'Broadband Bandwidth Concerns' and the lack of legislation in relation to digital radio and so subheadings emerged in my research.

I conducted the interviews using a semi structured interview in a free format. I brought a notebook, with topics I needed to the interviewee to air their views on. I can see why Lindlof (1995 cited in Deacon Page 7) described these as 'conversations with purpose'. However, on occasion, I did let the interviews sway as the interviewees were happy to divulge other information. I adopted a relaxing approach to the interviews,

often with a cup of coffee. I feel that by giving my interviewees an honest view of what I was researching, I was rewarded in return with openness and honesty.

Telephone interviews, can be difficult as you are solely relying on what people tell you and body language or reactions, one may pick up on cannot be interpreted. Again though, by portraying an openness, I feel that was reciprocated with my interviewees.

I feel that using Qualitative research and an interpretive approach was the correct one for my study.

## Chapter 4: Digital Audio Broadcasting in Ireland Today

In this chapter, I look at the roll out of Digital Audio Broadcasting in Ireland today, the issues that the broadcasters face in regards to their transmission, legislation and costs and possible effects for listeners. Currently, 85% of Irish adults listen to radio everyday. (Ipsos MRBI 2012)

### **4.1 Digital Broadcasting from The Broadcaster's View**

On April 3<sup>rd</sup> 2012, the Independent Broadcasters of Ireland (IBI) ([ibireland.ie](http://ibireland.ie)) held the 'IBI Broadcasting Conference 2012'. Digital radio wasn't on the agenda. Lisa Ní Choisdealbha, of the IBI, spoke of how there were two schools of thought within the group. The first is that the independent sector, many of whom IBI represent, know that digital radio will not 'take off' unless all radio station services are available on it. This takes investment, states Ní Choisdealbha, saying 'We don't have the money to invest in digital radio and if you can't do a proper job on digital radio there's no point in doing a half assed job on it. '

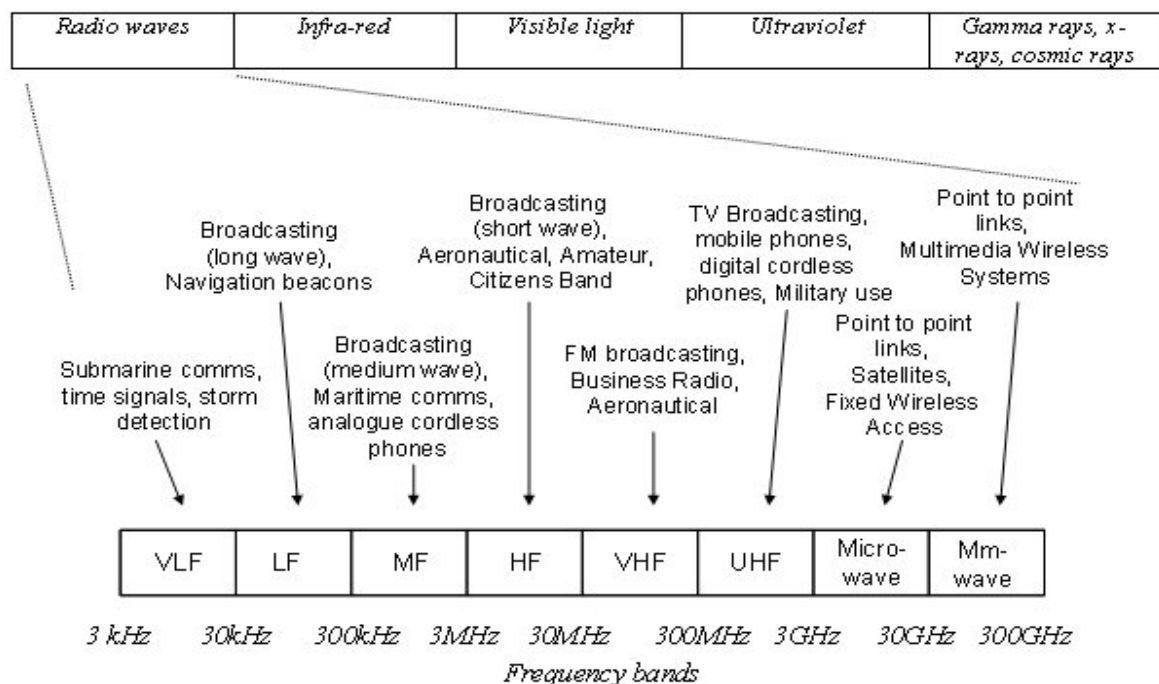


Fig 1. The Electromagnetic Spectrum (not to scale) (ComReg.ie)

According to ComReg's image (Fig 1.) there's nothing else that FM can be used for that it's not already in use, ambulance and aircraft communication. Ní Choisdealbha makes a another important point, no one is complaining about FM.

'there's no problem with FM, there's no body running to get rid of it, it's not like television where it's going to be shut off at a certain date, we're always going to have FM radio so there's no mad rush to get off it to move to something else that they really can't see a massive calling for.

(Appendix B.13)

The other side of the IBI concern is that they fear RTÉ may already have a foot hold in the digital market as they already have services operating on a DAB platform. 'Some of the stations would be afraid that when or if digital radio becomes a full time reality that RTÉ would be so far ahead with what they have done on digital, that the independent sector just won't be able to catch up.'

The cost of a digital switchover on top of regular broadcasting would impact on a radio station's finance, with possibly publicly funded and community stations being hardest hit. Donal Quinlan, Station Manager of Cork FM (corkfm.net) described some forgotten aspects surrounding a Digital Switch Over. 'It's not as clear cut as a commercial station...where 'They'll have to follow us if they want to listen to us and that's that', end of story.' When it comes to publicising a switch over, Quinlan wonders about the cost for a community station and the task of informing listeners.

'with community radio, if you take it that a person might only listen in once a week for their specific programme and not listen anymore, they might not be ready or fully aware 'Oh Jeez, I didn't know it was happening so quick', you still have to then publicise the fact in papers, on stationery and everything you do, which is another huge cost, not just the technical costs.'

(Appendix B.4)

#### **4.2 DAB Formats**

When the Broadcasting Act 2009 was going through the Dáil, many stations thought that there would still be no option but to turn to digital radio as is the case with analogue and digital television. The IBI lobbied for an 'increase of up to six years on your commercial licence' if a station invested in digital radio. No one is sure as to which format of Digital Audio Broadcasting it will be.

'Is it going to be DAB? Is it going to be DAB+? Is it going to be DRM? And

there's so much confusion over it that people are happy to sit back and say 'Look, we'll wait til everything pans out, we'll wait til there's a little bit more cash there that we can actually invest and more importantly there's a demand coming from the audience' (Appendix B.13)

The same attitude even applies in RTÉ. When asked about DAB rollout in Ireland, Dave Timpson, Platforms Coordinator said

'we're tending to use words like DTR, instead of DAB that means Digital Terrestrial Radio as opposed to zoning in on a particular format because DAB is one format of DTR because there's DAB+ which is being rolled out in the rest of Europe, apart from the U.K. and so we're currently at fifty four percent population coverage, not geographical coverage of DAB and what we're saying is we're going no further in the DAB rollout until the commercials engage with us.' (Appendix B.8)

It takes more than the independent radio sector to get on board though as Timpson says, 'The problem at this stage is regulatory. The BAI have not put the correct regulatory framework in place for the rollout of DAB or DAB+ in this country. ' (Appendix B.8)

If Ireland were to adopt DAB, which one do they go for DAB or DAB+? A digital audio signal is broadcast from a multiplex or Mux. The Broadcasting Act 2009 Part 8 Section 129 describes a multiplex as

'an electronic system which combines programme material and related and other data in a digital form and the transmission of that material and data so combined by means of wireless telegraphy directly or indirectly for reception by the general public.' (Page 132) ([www.irishstatutebook.ie](http://www.irishstatutebook.ie))

Dusty Rhodes describes the difference between DAB and DAB+

'DAB is a format which is called Mpeg Layer 2 or Mpeg 2, if you want, for a better word and that's what DAB is set up on and it needs a certain amount of space to achieve a decent bit of audio. But since then, the mpeg 4 format has



come out and this is what Apple would base their AAC format on, right, which means you can still get high quality audio but in a much smaller space, it takes less space to deliver. And that is known as DAB+.' (Appendix B.1)

In practical terms, Dave Timpson of RTÉ explains what impact this has on the sound output for broadcast.

'The idea is robbing Peter to pay Paul with digital radio. Really the lowest acceptable level you could run a music service like 2XM at is 128k, run it any lower, you'll start getting the musos going 'That sounds crap'.

Long and short of it is, DAB+ has three times the space that DAB has so DAB 2XM runs at 128k, again, subjectivity it could run at 48k on DAB+. So you fit three 2XMs into the same space or taking the example of Lyric, you could run Lyric at 160k DAB+ which would be beautifully full in its dynamic range and we would keep more people happy.' (Appendix B.8)

#### ***4.3 Regulation Issues***

The Broadcasting Authority of Ireland 'was established on 1st October 2009 to regulate content across all broadcasting, assuming the roles previously held by the Broadcasting Commission of Ireland (BCI) and the Broadcasting Complaints Commission (BCC).' Part of their role is to ensure 'that the number and categories of broadcasting services made available in the State best serves the needs of the people of the island of Ireland, bearing in mind their languages and traditions and their religious, ethical and cultural diversity.' (bai.ie) They issue licences to broadcast content.

When the BAI issue a broadcasting licence, The Commission for Communication Regulations (ComReg) are responsible for allocating a radio frequency for that licence. They are

'the statutory body responsible for the regulation of the electronic communications sector (telecommunications, radiocommunications and broadcasting transmission) and the postal sector. We are the national regulatory authority for these sectors in accordance with EU law which is subsequently transposed into Irish legislation.' (comreg.ie).

Peter Bradshaw stated that 'we found that when we applied for the renewal of our licence it was under the 2009 (Broadcasting) Act which was a digital content contract.' (Appendix B.10) Under the 2009 Act Section 133 (4) RTÉ were given a licence for the 'sound broadcasting multiplex licences in respect of the establishment, maintenance and operation of one or more sound broadcasting multiplexes.' (Page 137). This gave RTÉ the right to set up a nationwide digital network.

In the BAI Strategy Statement 2011-2013, Strategic Goal 2 is 'Ensuring Diversity' this includes:

'2.3 Examine the desirability of, and potential for, digital sound broadcasting.

2.4 Continue to advocate for the commercial take-up of digital terrestrial television (DTT), so as to provide Irish audiences with more choice in broadcasting content.' (Page 17)

Strategic Goal 3 states an objective as 'Facilitate a broadcasting environment which promotes a mix of public service, commercial and community broadcasting' (Page 18)

The BAI Workplan for 2011-2013, under the heading 'Providing a diverse range of broadcasting services and content' states that '2.1.3 The establishment of new digital content services is facilitated and supported through the timely processing of applications and contracts' (Page 5) Years indicated for this are 2011/2012/2013. (Appendix D.2)

The Workplan also states that '2.3.2 Engage with other agencies in the required spectrum planning activities to support the implementation of a digital radio policy'. Years indicated for this are 2011/2012/2013. (Page 6) (Appendix.D.2a)

The BAI have also issued the 'BAI Licensing Plan 2012-2013'. This is a 'Consultation Document'. The purpose of this was 'to seek views in relation to the current make up of franchise areas which will assist in the preparation and publication of a BAI Licensing Plan 2012-2013'. Respondents were invited to submit their views on the plan. The results will be published later this year.

The switch off of analogue television services is due to happen in Ireland by the end of 2012.

'SAORVIEW is a digital terrestrial television (DTT) service, which means the television signal is received through a standard UHF TV aerial on your roof paired with either a set-top-box' (soarview.ie)

This means that VHF frequencies that television currently broadcasts here should become free as this ComReg image suggests (Fig. 1) Does this mean that if the masts are longer used by RTÉ Networks ([www.rtenl.ie](http://www.rtenl.ie)) for analogue television, could they be transformed for use for DAB? Dave Timpson, Platforms Coordinator for RTÉ stated,

We're aware of this, there's a whole section of Band 3 transmitters, UHF Band 3 is what analogue television currently occupies, so October this year, gone. The question remains because the aerial stacks, the combiners because all that stuff is technically, technically, compatible with DAB. RTÉ is currently licenced to broadcast on Black C which is up a 227 Mz. Band 3 is give or take, up around that range and we're looking at ways again, this is where RTÉ Radio and RTÉ Networks have to get together and see what can be done, there's obviously huge costs involved and we'd have to do analysis on whether we'd go ahead with one particular format or not but as it stands we're not doing anything until the commercials get involved and we can't do anything until the BAI regulate.' (Appendix B.8)

With the clearance of frequencies Peter Bradshaw of United Christian Broadcasting suggests that

'as someone who has worked in the engineering sector, the first move you do is to make space and it would appear that (the switch over) from analogue to digital is going to free up space for much more DAB, than would presently be possible. If you look at the document, the Licensing plan for 2012/2013, yes it is renewing all those licences until 2022 but I don't believe it rules out the possibility of licencing DAB in parallel. It's exactly the same situation you've got in the UK, you've got all the FM and you've got all the DAB as well' (Appendix B.10)

#### ***4.4 More Choice, At What Cost ?***

According to Dusty Rhodes, one of the benefits of DAB radio is the listener gets a larger choice of stations to listen to and the option for broadcasters to offer sub-channels of their main station output.

'DAB is good for the listener and it brings more listener choice, I also think

that it's good for the broadcasters because it allows them to actually expand their broadcasting operations. So you could have Radio Nova or Sunshine in Dublin, the country music station, why are they limited to Dublin? They could be national tomorrow on DAB and that would expand their market. Today FM, they are already a national station but they've got say, Jim O'Neill's Oldies show on a Sunday afternoon, so why can't they run an oldies channel, Today FM Oldies or whatever it happens to be.' (Appendix B.1)

Dave Timpson of RTÉ, mentions a similar sub-channel set up but calls it 'Service Following' and explains it this way:

'Think Sunday morning on RTÉ Radio One, you've got religious services splitting out to another platform, just Radio One. Currently we split our networks so Miriam Meets is on Sunday morning and that stays on FM where as listeners who want to listen to the religious services are sent to Long Wave, which is another platform... At the same vein, you can send listeners to DAB or online on some particular sets' (Appendix B.8)

Within the BAI Licensing Plan 2012-2013, Consultation Document revenue and listenership issues are addressed.

'Listenership to broad-based local radio services is particularly strong but, equally, national and regional services and well established music services have a strong core listenership.

Some of the niche services have struggled to attract significant share of audience, although they have provided diversity and choice of content to audiences in their franchise areas. Similar to the television sector, there have been significant falls in advertising revenue since 2008.  
(Page 21)

The Licensing Plan also mentions that within different regions in Ireland, all radio stations have 'encountered revenue reductions since 2008. Depending on the region this varies 'between 10% and 30%'  
(Page 12)

While niche stations on FM have struggled, a bigger market on DAB could help their revenue, though, for community stations, going to a terrestrial digital platform could mean that they would have a bigger catchment area and this may take away some of the very local aspects. Donal Quinlan explains that the if small local station were to go on DAB, they would have a larger catchment area, and therefore more people to accommodate.

'you're not going to have the same impact because the topics you're covering now, aren't going to get covered because there are too many people who want to get their stuff out there.' (Appendix B.4)

Another aspect that needs to be addressed, goes hand in hand with legislation and with financial issues. Until a analogue switch off date is announced or unless another scheme was introduced, stations would have to broadcast on analogue and on digital simultaneously. This would mean extra transmission and possibly transmission costs without having an extra revenue stream.

## Chapter 5: IP Based Radio

This chapter deals with (IP) based radio. It deals with concerns about bandwidth costs, how stations actually calculate their bandwidth needs, and the possible introduction of a 4G mobile network.

### ***5.1 Irish Statistics***

Many over the air radio stations now also now provide an internet stream of their live output for online and mobile apps. In April 2012 an online search on TuneIn.com, an online radio aggregation site and smartphone app returns 108 results for Irish online radio stations. Another site, WunderRadio.com returns 75 Irish online stations. Some of these are internet only stations.

In 2012, for the first time, Ipsos MRBI ([ipsosmrbi.com](http://ipsosmrbi.com)), who conduct the survey for the JNLR (Joint National Listenership Research - [info.ipsosmrbi.com/jnlr](http://info.ipsosmrbi.com/jnlr)) in Ireland, released figures for internet listenership, having surveyed 15,584 people.

In 2010, 13% of those surveyed 'Listened to the radio live, on the internet (via radio station's website or media player) during 'the past month', 22% of 15-19 year olds listened this way but this figure gradually falls as the age group gets older, just 2% of 65+ listening online. (fig) 2011 saw a rise in the same listening figures, 24% of 15-19 year olds and 3% for 65+, with an overall figure of 14% of those surveyed listening online in 'the past month.' (Appendix D.3/D.4 )

Dubliners listened online most in 2010 (16%) and 2011 (17%), while only 10% listened online in Munster 2010 rising to 12% in 2011.

While these figures for online listening maybe rising, in 2011, 78% of people surveys never listened to radio, live, on the internet.

## 5.2 Audience Listening Habits



Fig 2. Spin 1038 Media Player Spin1038.com (April 2012)

Within Ireland, some radio stations like SPIN1038 (spin1038.com) (Fig 2) have a self contained online player, while others, like Radio Kerry (radiokerry.ie), do not. They instead offer users a choice of six streams to listen to.

How people are using online/website players and apps seems to be consistent, whether it be a Public Service Broadcaster or a Commercial station. Pat Balfe, Head of Technical for Communicorp describes their audience online listening habits.

'in the mornings the app has a peak, a very steep rise starting from seven A.M. which stays consistent until about nine A.M. I can tell you at nine A.M. the website kicks in and that continues and starts dropping off about the half four, half five mark where the app kicks in and meets another peak. You've got two app peaks and the value in the middle is being filled with the website.

Anecdotal evidence would suggest that, certainly, people are using the apps to stay in tune while they are commuting. That's something we didn't have before the app or the smartphone. We had a website that always got listeners during

the day for years, we've had this, but now the smartphones are actually bringing people to work.' (Appendix B.9)

Balfe also states that smartphone apps give their listeners the opportunity to stay with their station or brand while they are commuting, something they couldn't do before unless they had 'an FM walkman or something like that'. So, according to their statistics, this then allows 'them to continue in work with the website or stream and then back to the iPhone or smartphone, whatever it is.'

Dave Timpson, Platforms Coordinator with RTÉ is aware that people's listening habits are changing also. He describes FM as 'linear radio, you tune in there, done.' (Appendix B.8) He also believes that on demand radio is of 'growing importance'. However, News and Current affairs are not included in this as

'RTÉ Radio One puts that stuff out seven to nine in the morning, one to two and then four to seven. People listen to that and as soon as it goes off air, it's out of date. On the radio player, because we see all the metrics and stats coming back from that, it's got a very very short tail' (Appendix B.8)

RTÉ use a measuring figure called ' LOSWAL, Listened on Same Week As Live'. Documentaries, features and storytelling based radio programmes fair better than News and Current Affairs, because they have a longer shelf life.

'one hundred and sixty eight hours after transmission, the LOSWAL is tiny for News and Current Affairs but the LOSWAL is steady and significant for feature based radio. It's for obvious reasons. We're seeing people listening habits change.' (Appendix B.8)

Timpson, however, is still cautious about how people are commercialising podcasts and how many people are actually listening to podcasts, as 'Twenty million subscribers doesn't actually mean twenty million people listening.' Just because a user has subscribed to a podcast on iTunes doesn't actually mean that they have downloaded and listened to all of the content if any.

'When people listen on demand, you can tell exactly how long they've listened, where they've listened... Where as with podcasts, we see how many have been served but what has been served versus the subscriber is a very,



very different thing and when you're talking about commercialising this, you have to put a certain weight on it to offset the subscription and actual listens. It's tricky and it's a new area we are trying to navigate at the moment.'

(Appendix B.8)

Timpson uses arm gestures to point out the cross over between RTÉ's radio listening and television. At seven o'clock in the evening radio makes a downward slope, while the television viewing rises dramatically.

### **5.3 Broadcast Bandwidth Concerns**

Within the research of this study, the cost of bandwidth has arisen as a cause for concern for some broadcasters. Dusty Rhodes though, is quick to point out that these are two different types of transmission as DAB and FM are one to many. If you have one or a million people listening to a station from one particular transmitter, the cost is the same.

'The internet is one to one broadcasting which means that there is an incremental cost for every single listener that you have. The way I describe things with the internet on cost wise is that at the moment it costs, I think it's about one euro per listener per month.

Overall there was one and a half million people who got up and listened to the radio this morning. You know, if they all got up and listened on the internet, if they all did that at the same time, they would crash the internet. Not just in Ireland but worldwide. Do you know what I mean, millions of people trying to access the same thing on the internet at the same time, it's just, it's bad.

(Appendix B.1)'

Pat Balfe, Head of Technical for Communicorp admits that bandwidth costs are expensive but it is still an essential side to their transmission.

'Bandwidth is very expensive, when you stream television, when you stream radio. I'd be interested in seeing a cost analysis for a number of listeners, if you were to serve them over an I.P. based network, whether that cost would equal

the cost of a national distribution network. It's not something I've sat down and done but I'd be interested in seeing. I don't know how far apart they'd be but cost isn't a great concern we have in the streaming of our audio. We see it as a huge benefit to the company.' (Appendix B.9)

It may not be a great concern for a huge company but Community station Cork FM, ([www.corkfm.net](http://www.corkfm.net)) host an advert for their internet streamer on their website homepage. While Communicorp operate on a National level and Cork FM on a part time temporary platform, how will radio stations in between these on the food chain cope with these additional costs? Lisa Ní Choisdealbha, Development Director for Independent Broadcasters of Ireland reminds us

'at the moment the amount of online listening done to radio stations in Ireland is very very small and the majority of it is actually from overseas. So people from Tipp. or from Kilkenny or wherever who are living in Australia and America or all over Europe or wherever are tuning into their local station online....The stations can't make any money from their online at all, even from some extra advertising which tells you how little number of people are tuning in. ' (Appendix B.13)

For a public service broadcaster like RTÉ, they have to look at all broadcast options for their audience but Dave Timpson, Platforms Coordinator with RTÉ Radio, isn't convinced that the internet is the way radio will go in the future. He echoes what Dusty Rhodes (Appendix B.1) has previously said:

'when you build an FM or DAB network, it's a hugely expensive infrastructural operation,.. RTÉ built its FM network and it's been growing all the time and it's been maintained...It's hugely expensive to build, however, it's one mast technically serving a whole population.... If ninety thousand people move to Dublin over the space of three years and then some, that DAB or FM transmitter, that Free To Air transmitter, shall we say, can bathe the town in Free To Air signals. Ninety thousand new radios get bought, no extra strain on the mast. On the other side of the coin, you add ninety thousand listeners to online, you've got to serve every one of those, one to one. Now, to listen to an RTÉ stream on your app, it costs twenty four megs an hour in terms of your bandwidth, now not an issue if you're at home on your broadband because

chances are you've got your one hundred gigs or whatever, you won't go near your bandwidth. (Appendix B.8)

For RTÉ from a public service viewpoint, it is what Timpson describes as 'Very bad public service'. If you've already paid a television licence which RTÉ benefits from, as the listener would then also be 'technically paying because you've paid Vodafone or 02.. 'Twenty three percent of all our listening is on mobile and growing every month. The shift to mobile is just astronomical.'

Despite this figure rising all the time, if everyone listens online, this could put broadcasters in financially difficult circumstances.

'if everybody who listens to the BBC, on a Free To Air source, DAB, Long Wave or FM shifted to online tomorrow, the BBC, chances are would be bankrupt within about twenty days and would no longer be able to operate plus whatever about the financial side of it the infrastructure couldn't take sort of strain.'(Appendix B.8)

#### **5.4 How Internet Audio Stream Providers Work**

Denzil Lacey of Zava Media (zavamedia.com) , is an internet stream provider for radio stations in Ireland and abroad, he described how radio stations actually calculate how much bandwidth is needed for their streams. While a lot of internet streaming companies offer unlimited bandwidth, the quality of streams within that bandwidth can vary. Lacey currently provides an audio streaming service for Dublin based station, Classic Hits 4FM.

'we've got three different streams each have the capacity of five hundred people and they're three different qualities. So say you go to TuneIn and select 128 kilobytes per second, there would be five hundred slots on that so if you change to 64 there would be another 500 slots on that.' (Appendix B.12)

Each slot represents one listener so if there are three different streams that means that fifteen hundred people can listen online at that point. The standard audio stream currently has a data transfer rate of 128 kilobytes per second but Lacey admits that it

'varies with stations, some of the local stations have stupid ones, some are 64, I've even seen some that are 32 but the standard is 128. I think Newstalk even use fairly high up, even though it's just talk, it could be 96 or something. Soon, it's going to be 192 as the standard, some of the stations on iTunes are even using that now.' (Appendix B.12)

Lacey also addresses the myth that if more than fifteen hundred, or that station's capacity try to log on at one time, that this will crash the stream. He says that 'a lot of people blame their stream dropping on that' but in actuality what happens is 'it won't let anybody else on, it won't drop anybody off but it won't let anyone else on. It just won't let anybody else on'. He also states that he's 'pretty sure that stations like Newstalk or RTÉ would have a couple of thousand' capacity.

Going over your capacity shouldn't have a detrimental effect on your radio stations online output or to the cost for going over your bandwidth allowance as you can always upgrade at any stage. Lacey does point out though the advantage of this for the small hobbyist.

'You could start off a little internet station with a hundred slots so people could listen in if you can see that you can always upgrade again. Most of these packages from different companies will allow for that, you can just upgrade on your current package.' (Appendix B.12)

For the hobby station, some of these packages are from \$9.99 on websites such as FreeShoutCast ([freeshoutcast.com](http://freeshoutcast.com)) for unlimited bandwidth, at 192kbps and one hundred listening slots. Lacey points out things to consider.

'there's always terms and conditions, you have a certain amount of bandwidth, some of them can be low, basically if you go for a package of one thousand listeners and you've got low bandwidth that means they are eating into the bandwidth. The more listeners you have the quicker the bandwidth they're going to use but most packages these days are unlimited so you're only going to worry about how many listeners you are restricted to.' (Appendix B.12)

Lacey maintains that nine out of ten radio stations would use external companies to look after their streams, however if streaming is bought from a territory around the world, including Ireland, you maybe

liable for music royalties and other landing charges.

'It's a bit of a grey area and there are no right or wrong and there are no set guidelines for that. Generally, there's a server in a particular country and your computer with the music you're playing is streaming to that server in America and that's what you're hearing so actually technically what you are hearing is from America or whatever country the server is in.'(Appendix B.12)

## **5.5 4G Rollout in Ireland**

'The industry will play the main role in deciding when 4G services will be deployed' (Appendix: E.1e) ComReg (Commission for Communications Regulation) have said and they are 'currently in the process of arranging a multi band spectrum award, which will make more (radio) spectrum available to facilitate the industry in rolling out 4G services.'

ComReg has published documents which are helping to understand the technicalities surrounding the 'GSM band liberalisation and the 800 mhz spectrum'. (Page 9) and to the correspondence from ComReg (Appendix Email), after October 14 2012, when analogue television is due to be switched off, the frequencies necessary for 4G will be cleared.

ComReg simplify the technical language in their report summary:

1.3 The 900 MHz band is the main band currently used for the provision of GSM or '2G' (second generation) mobile services such as voice and SMS text messaging. The 1800 MHz band, is also used for GSM services, mainly to provide additional capacity in urban areas where demand is higher. Until recently, the 900 MHz and 1800 MHz bands were reserved for GSM use only but the EU has mandated that both bands be 'liberalised', meaning that they can be used in future for providing advanced mobile services such as mobile broadband data, utilising '3G' and '4G' technologies alongside GSM.

1.4. The 800 MHz band is currently used for the provision of analogue terrestrial television services. However, following the introduction of digital terrestrial television services and the switch-off of analogue services, which

the Minister for Communications, Energy and Natural Resources has confirmed will take place on 24 October next, this band will also be available for reallocation to mobile services.

1.5 In total, therefore,  $2 \times 140$  MHz of prime sub-2 GHz spectrum will be available for use by the mobile industry, more than doubling the current assignments in the 900 MHz and 1800 MHz bands.

1.6 All three bands are universally regarded as highly suitable for mobile services by virtue of their propagation properties, enabling wide area coverage and effective in-building penetration, and hence facilitate the provision of high quality national mobile network coverage at a reasonable cost. How these bands are assigned will therefore be critical to the development of mobile services in Ireland, affecting, in general terms, not only the attainable levels of efficiency, innovation and quality in these services, but also the competitive position of operators as well as the interests of all mobile users'

From this information, we can see that the door will be open for the introduction of 4G or at least 4G trials to Ireland from October 2012. While ComReg reminds us what the advantages are, it also indicates that this high speed technology may also impact mobile phone bills and data allowances within the users package from their mobile operator.

'4G technology, for example LTE (Long Term Evolution), is another mechanism for providing high speed data to and from users. Depending on the availability of the content and the location of the user, the user may choose to access radio services over 4G wireless networks, fixed networks, broadcast networks, satellite networks etc. There are some benefits to broadcast networks as they typically provide services on a free to air basis, other services may be subscription based and streaming/ accessing content may impact on their data package. Accessing radio over 4G networks however may offer the user a greater variety of content.' (Appendix Email)

## **5.6 Wifi Radio Case Study: BuzzRadio.fm**

BuzzRadio.fm is branded as a 'Northern Ireland's Number One WiFi Station'. Set up as a hobby station in 2009 by Greg Parke, the station now boasts about one hundred and sixty thousand listeners every week.' (Appendix A.6) From its roots, with a listener just being able to listen online,, the station changed its marketing and branding and aimed to get on every WiFi radio model, radio station listings site and smartphone app. (For more information, see Appendix C.1)

## Chapter 6: Satellite Radio

This Chapter deals with another digital platform, Satellite radio, Gregory Orton of Solaris Mobile explains the satellite radio world.

Sirius XM Radio ([siriusxm.com](http://siriusxm.com)) is an American wide, commercial free, subscription based satellite, radio provider. They have developed unique content for their brand, boast names like Howard Stern and Martha Stewart among their talent and offer over one hundred and forty channels to subscribers.

In July 2008 Sirius Radio completed the acquisition of rival XM Radio Holding Inc. to form a new company, Sirius XM Radio. ([reuters.com](http://reuters.com)) The company posted a profit of '\$71.3 million, or a penny a share, compared with a year-earlier loss of \$81.4 million, or 2 cents a share.' ([foxbusiness.com](http://foxbusiness.com)) it also reached a subscriber high of 23.2 million. While the company is now making a profit, would this satellite model be a viable radio option for Ireland?

Solaris Mobile 'are a next generation Mobile Satellite Service (MSS) operator engaged in providing access to satellite and terrestrial network infrastructure that support enhanced mobile communications across Europe' ([solarismobile.com](http://solarismobile.com)) They have their headquarters in Dublin and in 2009, were awarded mobile satellite spectrum in each of the twenty seven EU member states. A precondition to that authorisation was the company had to launch a satellite. (Appendix B.11)

It was a joint venture between Eutelsat ([eutelsat.com](http://eutelsat.com)) and Ses ([ses.com](http://ses.com)). According to Gregory Orton of Solaris Mobile, the business plan was to 'deliver mobile TV to the masses in Europe'. Because the parent company do this on a fixed satellite basis, they believed that they could do it on a mobile basis. However, a number of issues arose. Mobile devices are only now becoming capable of receiving broadcast television. Using satellite means the mobile phone or receiver must have a direct line of sight to a satellite in the sky which all made latency an issue. A geostationary satellite, which sits in one position was trying to deliver to a mobile base. According to Orton, they were at a disadvantage:

'Mobile network infrastructure can adapt, because, well O.K., it's still fixed infrastructure, say the population move fifteen kilometres away from.. Dublin, you just set a mobile mast fifteen kilometers away from where it is and you've got a backhaul on the terrestrial side and straight away you've got a linked in



network.' (Appendix B.11)

The company then looked at broadcasting, in its widest terms, datacasting to cars anything that 'streams over satellite, that's just an uplift from one and then beamed out to many. And I guess the big benefit might be, or the big market you might look at is radio.'

Having a geostationary satellite though still is a problem. In cities and towns, direct lines of sight would be obscured by buildings, leading to the need to build a terrestrial infrastructure, which would in turn run into higher costs. Even if this infrastructure is in place for a mobile network, then comes the issue of mobile phones and receivers being able to receive the satellite feed.

Solaris Mobile started investing in technology and did so in French company, DIBcom (dibcom.com) Together, they developed a ' Digital Video Broadcasting (DVB) standardisation chip and it was SHA, so it was Satellite, Handheld and A is just the first element so it's for Alpha.' They then packaged those in a receiver for cars which was made by Italian company Quantum.

Vehicles were chosen before phones as many of the mobile operators did not want a satellite chip in mobile phone handsets as people were consuming data over their 3G network. Another issue would be all phones would need to be dual band compatible as the mobile satellite frequency is different to that of mobile operators. 'We have radio spectrum, which are frequencies adjacent to the UMTS bands, which are the mobile network bands at 2.1. So anything that a mobile network operator uses, we've got the frequency band just above that', says Orton. Even, if this was possible to do, an mobile phone user interface would have to be designed to suit each phone.

If all these obstacles were overcome, Orton says that it still comes down to the business plan.

'You'll say, 'Well we're expecting radio broadcast to pay us carriage on the satellite to get access to this market and they'll say 'well, they've already got access to their market traditionally, they've already got access to their market over web, it's not a flyer.' (Appendix B.11)

Sirius XM though, are now in profit in the US, there are a couple of other different factors which contribute to its success and a lack of satellite radio in Ireland. The United States is a homogenous market and despite having individual states is treated as a whole by The Federal Communications Commission

(fcc.gov). This is a problem for Solaris Mobile in Europe.

'We have an authorisation but we don't have a licence in every country so we'd have to go to each of those countries and say 'We want to set up a broadcasting..', you have to go and get a broadcasting licence. Now, I'm not saying that a huge problem but there's a cost associated with that too and you're not going to do that unless you have something valuable to sell which is the content only.' (Appendix B.11)

Transmitting an Irish radio station back into Ireland may not be a huge problem, 'They'll (BAI) probably go 'that's really not an issue', now that's my feeling on it myself, we've never actually gone to these guys and said that because we just don't have the content platform or an appetite in content platform'.

Broadcasting over satellite to other European countries brings up a number of issues according to Orton. Cultural and languages problems are the first. In Europe, we have different backgrounds so a radio presenter who appeals in Ireland or the UK, may not appeal in Italy or France. Cultural differences and customs will alienate different countries.

The biggest problem seems to be with 'landing issues and broadcasting rights'. If a radio station plays into different territories it may then be liable to pay music performance right in each of those individual territories. Solaris Mobile spoke to United Radio, a consultancy firm in the UK about this issue. Orton states that 'They said 'Well, you really need to look at this because it's a real issue. It's a rights issue that you'll come across that you're broadcasting content into different parts of Europe and you may be brought to heel by different associations and different people.'

Geoblocking is possible with a satellite but Orton says that the current Solaris Mobile Satellite has six beams,

'Unless, you build a satellite that has twenty seven beams and even then you've got cross border because the beams, even then, well they can be, formed, pretty much to cut like the landscape, but then you need to put an awful lot of investment in to make sure the beam formed network is correct and even then there's always going to be carry over into some country.'

(Appendix B.11)

Orton believes that Sirius XM's success been down to a combination of a subscription based audience and unique content. As Sirius were delivering the actual satellite element, they also became 'vertically integrated ' developing studios and content. 'They have this exclusive content generated that's cost them a lot of money, they've brought this together, there's no secret to the fact that their success is because they have exceptional premium content, same as Sky have in Europe.'

The huge North American landmass and distance between urban conurbations means a lot of areas didn't have a choice of radio stations to choose from. 'If you're in the back end of Idaho or something, you don't have many radio stations and satellite gives you that ubiquitous coverage,' says Orton.

If a consumer is in remote area they can buy a satellite radio and subscribe to a basic SiriusXM package with 130 channels for \$14.99 a month ([www.siriusxm.com](http://www.siriusxm.com) April 2012)

'They are prepared to do that because what's the alternative? One country music station. It's just a no brainer, if you can afford to do it, you'll do it because there's just no alternative. If you're in Europe, or you're sitting here in Ireland, I've got, I can turn on the radio and I can get DAB on the radio, I get FM on the radio, pickup my phone and I've got access to every single web based station that's out there, which are pretty much all the ones I'd want to listen to anyway. And then you say 'What's the advantage of having satellite?', that's the problem.' (Appendix B.11)

## Chapter 7: Converging Platforms

This chapter describes converging platforms of radio broadcast. With multimedia technology the edges sometimes blur. When does radio stop being radio?

### **7.1 Hybrid Radio:**

Technologies developed for broadcast receivers and the internet have now converged and are seen at work together in what is known as Hybrid Radio.

Radio DNS 'is open technology that lets broadcast radio and the internet work together, enhancing the listener experience, and making radio better.' (radiodns.org) Depending on the radio receiver, text, visuals or links to other data can be seen on the receiver's display unit. Some of this Programme Associated Data (PAD) could include information such as 'Now Playing', a radio station's logo, album artwork of a particular song, or indeed links to other information. Dusty Rhodes explains

'at the moment, the most basic of radios will just have a scrolling text option, which will tell you the name of the song that's playing now or the name of the programme or whatever it happens to be. In the U.K., they've gone a little bit more advanced with a thing called 'Slideshow', with which you are able to broadcast pictures that are associated with the programme being broadcast.'  
(Appendix B.1)

RadioDNS is currently broken into 'three sub projects',

- ⤴ 'RadioVIS: “visualised radio” - adding glanceable pictures to radio on all radio platforms
- ⤴ RadioEPG - a fully-featured electronic service and programme guide, encouraging discovery and enhancing listening choice
- ⤴ RadioTAG - allowing the listener to display interest and interact with elements of programming, while acknowledging the secondary nature of radio' (radiodns.org)

This gives the user the opportunity to interact with their radio receiver, if they so desire. If they miss a song title, they can see on the display which artist it is, if a presenter is in studio with a guest, a picture of them can appear on the display, so the user can identify with them. Or, if a newsreader is reading news headlines, they can say 'Look at your receiver now to get more information'. The broadcast information is received through FM, DAB or HD Radio while all the metadata is received through an internet connection. Dusty Rhodes calls this 'Passive Interactivity' as it is up to the listener to decide what they wish to get more information on. (Appendix B.1)

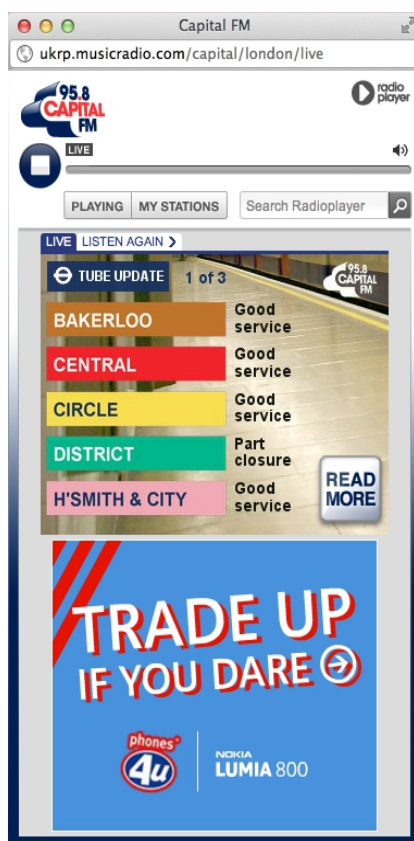


Fig. 3 Screenshot of Capital FM media Player  
Tube Service Details



Fig.4 Screenshot of Capital FM media player  
Presenter and Song Details

Capitalfm.com/london April 2012

Andy Green of Total Broadcast explains the basics of Radio DNS saying 'FM or DAB has a unique code which identifies the programme and the particular item on the air, it doesn't say this is a track called so and so, it's an identifier.' The radio receiver then goes to the DNS server and obtains the metadata for what is being broadcast. He adds, 'it's a cheap way of making extra content and it does add a lot of stuff and not a lot of hassle.' (Appendix B.2)

Green's colleague, Brendan Kehoe points out that the extent of what the three sub projects of DNS can do is often down to the radio station playout system. He mentions Capital FM in London ([capitalfm.com/london](http://capitalfm.com/london)) and how they have managed to harmonize their content across streaming platforms. '

'they use the same slides basically that get sent out for RadioVis, which is part of Radio DNS for their iPhone app, for their radio player, player on the website.

Everything comes from the same source, whereas other people seem to do it, one at a time, it's not harmonized, then it becomes more complex. (Appendix B.2)

Kehoe explains how to update from a studio playout system like Myriad ([psquared.net](http://psquared.net)). This system has an accompanying programme called OCP which is an output control programme. This allows you to output the Programme Associated Data, across different mediums.

'It can output text information which can update your RDS, your now playing information, another one can go to your DAB feed for your text services, your DNS, your dynamic label on DAB and potentially you can output the album art then to DAB for a slideshow and things like that.' (Appendix A.2)

(RDS is Radio Data System, digital information which is used in FM broadcast.)

Kehoe also shows how versatile RadioVis can be as he made a 'proof of concept' slideshow for South East (Radio) and integrated both their Facebook and Twitter feeds.

'You can design or do the layout of a slide and integrate it into the section of the slide where you want it to be. That can come from anything, your news headlines, the newsroom, Facebook updates, twitter updates and that can go onto the screen of your radio, it's no problem at all.' (Appendix B.2)

Dave Timpson of RTÉ thinks this convergence of platforms and a receiver like the Pure Sensia ([pure.com](http://pure.com)) is a good idea, though, it maybe a little futuristic.

'It's got FM, Long Wave, DAB and DAB+ and RadioVis which is internet radio with lots of pictures. I used to have one here but I got rid of it because it

was, too much, in terms of simplicity. But the idea of the Sensia was it was a platform convergent radio, it was more like a television, like a little egg and there's no dials, it's all touch screen and I think that this radio didn't know what it was, it didn't know whether it was a television or a radio or an internet device or almost like a tablet but the idea was if you were listening on FM and your FM signal broke down it would instantly go over to Radio One and you would have no break in the signal. It's a good idea, its just about ten years, no, five years ahead of its time.' (Appendix B.8)

## **7.2 Smartphone App Development**

The progression of technology and the possible introduction of 4G mobile after October 2012, opens up numerous opportunities to introduce some of these to mobile phones. Having smartphone application solely to access your favourite radio station, isn't anything new but at present RTÉ are working with IDAG in Norway. IDAG is a non-profit organization seeking to promote, facilitate and coordinate DMB (Digital Multimedia Broadcasting) initiatives around the world. ([theidag.org](http://theidag.org)) This includes DAB, DAB+ and other methods of digital broadcasting. (Appendix B.8)

Android Smartphones, possess FM receivers, with which you can access FM radio stations. Dave Timpson explains the development,

'there is no facility thus far in an Android phone for an application to make a call via the app to the FM chip, so you can listen to FM radio but you can't listen to FM radio via an app.

So, what we're in the middle of trying to develop and were getting there, we're making progress is, take the example of the RTÉ radio player, we are trying to develop the radio player so the heavy lifting, the heavy lifting in the app is the stream, that's 22MB an hour. The data, you know, the now playing, picture all that metadata and associated data, that's small data that's a couple of k.'

(Appendix B.8)

RTÉ are working on this project with broadcasters from Germany and Norway and if they succeed with this, it could change smartphone listening habits, not to mention save bandwidth and lower users bills.

What will essentially happen is a radio player is switched on, it will scan and detect either a DAB or a FM signal in the area. The app will then automatically switch the audio source to DAB or FM and only serve any programme associated data from the internet. Timpson adds 'it's convergence and it's good public service'.

While the three national broadcasters hope to launch the hybrid app, they cannot discuss the 'technical aspect of what's in the API bridge 'as they are under 'NDA, Non Disclosure Agreement'. Timpson is happy to say,

'it's really really good news. It's about convergence, it's all about convergence, people will talk about 'The internet's the future, no FTA (Free To Air) is the future', they're both very important but in the next twenty years, the internet cannot supply what FM or DAB can supply.' (Appendix B.8)

### **7.3 Radio You Can See**

Some Irish radio stations now offer 'Radio You Can See', these include Newstalk ([newstalk.ie](http://newstalk.ie)) and Spin 1038 ([spin1038.com](http://spin1038.com)) both of which are part of the Communicorp group. This advancement has let the listener become the viewer as they can see what happens in a radio studio. This has split opinion on when does radio become something other than radio.

Dusty Rhodes questions the validity of having a constant visual stream

'Ninety nine percent of the time, there's nothing going on... what it is brilliant for is and this is where there is a great use for it is if you have a radio station and you've got, One Direction in the studio with us, yes absolutely, video it, have the cameras there, just use it selectively. Don't have it on twenty four seven.' (Appendix B.1)

On February 26 2012, BBC Radio One's Top 40 Chart Show presented by Reggie Yates started showing videos online for the Top 10. According to the BBC media centre

'Ben Cooper, Controller of BBC Radio 1, says: "This is the Chart Show for the 21st century. I'm very excited about this innovation. Young people will be logging on to listen, watch and take part in the show. I



hope that this will be to our young listeners what listening to the chart and waiting to record your favourite pop songs was for another generation.” (bbc.co.uk) While BBC are broadcasting audio both video and online, this type of show has been done before. The Beat Box was a simulcast between 2FM and (then) Network 2 in the eighties and nineties. One of the presenters of the show, Simon Young described the show from a broadcasting point of view.

'It was a very difficult one to do, as a radio person, ...I was very aware of the radio audience who would be listening in, who could hear us at times waxing lyrical about a video they hadn't seen... The dynamics were different, the dynamics of radio and TV are totally different.' (Appendix B.14)

The show was set in a television studio and videos were played from the television studio's gallery, with the presenters also being counted in to their spoken links from the gallery, 'the TV producer was trying to make it look like a TV show, the radio producer was trying to make it sound like a radio show so we were trying to be all things to everyone.' Young recalls how he asked for a foot pedal so he could start a video playing himself. 'It was just trying to tighten things up, it was more control over the radio element. We were radio people.'

Q-Music (q-music.be) is a radio station based in Belgium. As well as having an online audio media player, it also offers a live visual stream with television style graphics, weather and news headlines. This visual stream is also broadcast on cable television in Flanders (Appendix D).

The radio studio is spacious and lit for visual purposes. Viewers can see the presenters talking on air and then when songs are playing and to keep the stream interesting for the viewer, videos are played on flatscreen monitors placed on the studio walls. (Fig. 5/6)

The station uses a music playout system called Dalet (www.dalet.com). While Dalet+ uses video, Thorn Weyers, Visual Radio Manager of Q-Music said that we generate the music videos with a self-build media player, which uses our music videos and if there's no match in our system, it looks for a version on YouTube. (Appendix E.3)



Fig. 5 Screenshot of Q-Music studio with TV style graphics (1) (Q-music.be April 2012)



Fig. 6 Screenshot of Q-Music studio with TV style graphics (2) (Q-music.be April 2012)

## Chapter 8: Other Digital Possibilities

This chapter looks at the digital platforms that seem to have been slightly overlooked in Ireland, rightly or wrongly. We look at HD Radio and at DRM, Digital Radio Mondiale. If digital platforms are changing, so must radio business models to match that, this chapter looks at Amazing Radio and at Gaydar Radio.

### **8.1 HD Radio:**

HD Radio Technology converts the traditional analog radio broadcast to digital and provides advanced audio and data features that enhance your listening experience. ([www.hdradio.com](http://www.hdradio.com)) As in Radio DNS in FM and DAB, along with audio, extra text and data information can be displayed on a HD receiver.

According to HDradio.com there are some differences between conventional radio and HD radio.

- ♣ The digital signal layer is compressed.
- ♣ The combined analog and digital signals are transmitted.
- ♣ Inevitably radio signals bounce off objects, causing what is called multipath distortions. This is what causes the static in conventional radio receivers. HD Radio receivers are designed to sort through reflected signals, reducing static, hiss, pops and fades.
- ♣ When the HD Radio broadcast signal reaches you, it arrives in a crystal clear, static free format that will amaze you and includes a wide array of data that appears on your radio display as useful text and/or images.

One interesting aspect of HD Radio is that it has a 'Live Pause' which allows listeners to 'Pause Live' broadcasts for playback at a later time.

As of April 18 2012, ComReg said 'We have not received any application for a HD Radio trial as yet.'  
(Appendix E.1e)

## 8.2 Digital Radio Mondiale (DRM):

Digital Radio Mondiale 'is the only global open digital radio system which can be used in all frequency bands (AM and VHF).' As well as offering multimedia applications, as with HD Radio, it also offers simulcast audio and digital programming and an emergency warning feature, 'where all receivers switch and present audio and text information.' As DRM is an open system, there are also no recurring costs for broadcasters. DRM receivers, like Hybrid and HD radio, also display extra features, such as an electronic programme guide, a slideshow and Journaline, a feature which allows the user to click for more information. ([www.drm.org](http://www.drm.org))

According to DRM.org 'It has been designed specifically as a high quality digital replacement for current analogue radio broadcasting in the AM and FM/VHF bands... and as such it can be operated with the same channelling and spectrum allocations as currently employed' (Fig 7) below, shows the where DRM can be used on the radio spectrum in comparison to DAB (here called Digital Multimedia Broadcasting) and HD Radio.

### DRM is the Digital Radio standard for all bands up to and including VHF!

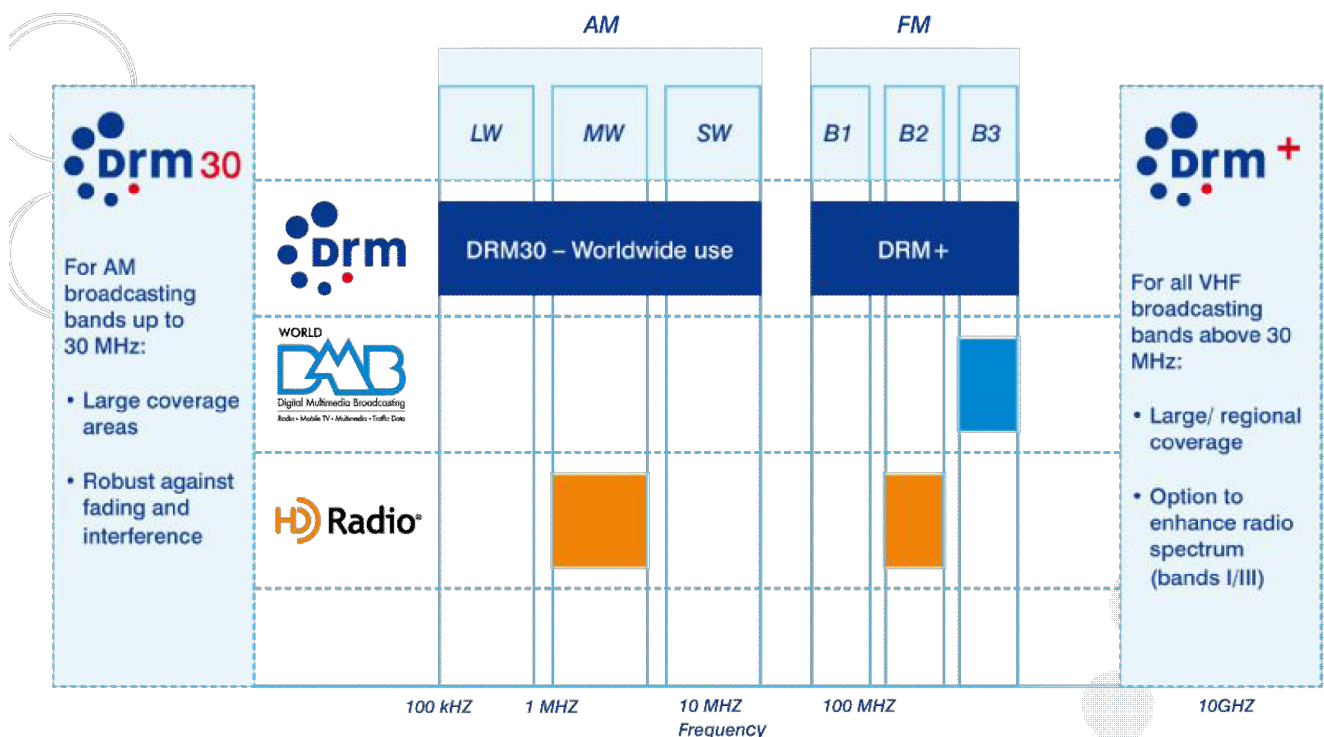


Fig. 7 DRM band comparison with DMB and HD Radio ([drm.org](http://drm.org))

DRM can be used to cover large geographic areas, India being one. January 2012 at the Consumer Electronics in Las Vegas, saw the launch of a 'single automotive digital radio solution for all the three key global digital radio standards – DRM, HD radio and DAB/DAB+/T-DMB - on the same co-processor.' This is a car radio platform launched jointly by The DRM Consortium and NXP Semiconductors N.V and is hoped to take advantage of the 'booming Indian car market'.

Ruxandra Obreja, DRM Chairman said that 'Getting a new DRM solution for India and the rest of the world will definitely advance the DRM roll-out in one of the premier radio markets of the world. (www.drm.org) NXP Semiconductors were described themselves as 'the world's largest supplier of car infotainment semiconductors.' (www.nxp.com)

ComReg stated that RTÉNL (RTÉ Networks) ran a DRM trial in 2007. (Appendix E.1e ) In 2007, Enda O'Kane, who worked for RTÉ, was quoted as saying.

'DRM will be carried on RTE's longwave 252kHz transmitter.

Nightly commencing 08/08/07 until 15/08/07 from 0100hrs to 0700hrs UTC,

In addition to above :

Mon August 13th commencing 2100hrs ending 0800hrs on Tues Aug 14th.

Tues August 14th commencing 1400hrs ending 1400hrs Wed Aug 15th

These tests are to gauge public reaction to this technology and RTE regrets any inconvenience to listeners.

After these tests RTE will review the results.

It is important to stress that RTÉ has, as yet, no plans for a DRM launch'

(briangreene.com)

Currently on their website RTÉ state that

'Plans and tests are in progress in various parts of the world to provide long range digital programming, at speech quality mono, using the LW, MW and SW bands.

When this service becomes available it will offer many advantages over the present analogue broadcasting systems, especially from the point of view of

interference which limits listening enjoyment, particularly at night. MW and LW services are likely to provide a very good quality service. The SW services may be somewhat less stable due to the extreme fading that is a feature of shortwave propagation. Also it may take some time to harmonise the international regulatory considerations worldwide. Engineering tests are ongoing on all those systems.

At present there is no widely available public broadcasting service on the air.

It is also anticipated that DRM will be provided free to air, to replace some of the services presently available on the MW and LW bands.' (www.rte.ie)

It again, is worth nothing that Platforms Coordinator of RTÉ, Dave Timpson said in relation to DAB (Appendix A.8) 'we're tending to use words like DTR, instead of DAB that means Digital Terrestrial Radio as opposed to zoning in on a particular format because DAB is one format of DTR.'

### ***8.3 Alternative Business Models***

When looking at the future of radio, it is important to not only look at other technologies but also to look at alternative business models and how they adapt to a changing environment.. Two such radio stations are UK based, broadcast on DAB in the UK and both cater for niche markets.

#### ***Amazing Radio***

Amazing Radio (amazingradio.co.uk) is a Newcastle based radio station, which broadcasts on DAB in the UK as well as online. It boasts a sister station, AmazingTunes.com, an online store from which the station sources all its music. However funding the radio station, is yet another website, AmazingInstore, where the new and emerging music from their online music store is licenced to shops on the High Street as an alternative to the more expensive PRS (Performance Rights Society) rates. The station is also pushing technology, having launched a 'timeshift' player for the American market for 'as realtime listening.' (For more information see Appendix C.2)

## ***Gaydar Radio***

Gaydar Radio started life as an online dating site, music was streamed 'from a juke box, propped up in a bedroom on a table and it was propped up by a travel book and it played music to the guys when they were online'. It broadcasts online and on DAB in London and Brighton.

Following a merger with Purple Radio, Gaydar acquired a London multiplex, giving it's online presence a foot up into digital radio. The station now boasts 94 hours of live programming a week and over seventy five percent of its audience within the UK, now listen online. (For more information see Appendix C.3)

## Chapter 9: Future DAB Trials in Ireland

On February 27 2012, Dusty Rhodes stated that he had 'a new DAB trial coming along, I'm going to put 'All Eighties' (his station) back up on that.' (Appendix B.1) DB Digital Broadcasting is a 'company was founded by Joseph King and Dusty Rhodes.' ([www.dbdb.ie](http://www.dbdb.ie)) On this website, it was announced that 'we've sent out letters inviting radio stations and content providers to partake in our DAB/DAB+ trial'

The Sunday Business Post reported on March 11 2012, that 'Radio audiences in Dublin, Cork, Limerick and Galway will have twice as many stations available to them this summer, as a result of a new digital audio broadcasting (DAB) radio trial.' In this report Mr. Rhodes states 'Our goal is for DAB to bring 30 brand-new radio stations to every single home and workplace in the country. Currently, most people in Ireland are limited to just eight.' ([www.businesspost.ie](http://www.businesspost.ie)) (Appendix D.1)

Dave Timpson of RTE explains what the trial is

'They've applied for what is called a Wireless Trial Licence and that means they can put up a digital radio sound broadcasting multiplex, as it's laid out, and they can put any service they want on that for a set period of time. That's strictly a trial licence so what (DB Digital Broadcasting) have done is they have paired with, Dusty's company being a content provider ,have paired with a network operator, a third party network operator' (Appendix B.8)

Total Broadcast in Waterford had their trial licence renewed but Andy Green is keeping this 'reasonably quiet' as

'when we got the licence from ComReg, they said 'This is a trial licence, it's not a public service licence and we don't want you publicizing it... You cannot charge broadcasters for being on it, you can get a contribution for helping, but do not think you've got a licence to run DAB. You've got a trial licence.'  
(Appendix B.2)

A trial licence must be obtained from ComReg for a trial DAB/DAB+ licence. Under the 'Conditions Attached to Trial Licences' heading, the following is stated.



'Trial licences are issued on the understanding that the trial is carried out on a non-commercial basis and, in particular, that any payment or like consideration by a third party to the licensee in connection with the use of radio equipment, spectrum or services under the licence is limited to recovery of costs arising from the trial. Details of any charges to be levied on participants and the basis of their calculation must be provided with the licence application. For the avoidance of doubt, ComReg will not be liable for any costs incurred by the licensee in applying for the licence or operating the trial.' (Section 1, Page 4) ([www.testandtrial.ie](http://www.testandtrial.ie))

Under the 'Conditions Attached to Trial Licences', section 3 the following is also stated. 'The number of third parties that the applicant wishes to participate in the trial must be stated in the application.' (Page 5)

Lisa Ní Choisdealbha, Independent Broadcasters of Ireland, when asked if any of their members were partaking in the trial, said

'No, not that I know of. ... I think part of the conversation I had with a couple of them was that it was very expensive, there was nothing to be gained from being on the trial and because licence applications are coming up for renewal in the next year or two, they didn't want to get involved in something that they could be potentially looking for in five or six years time to give them six years extra on their (FM) licence. I think they have enough on their plate at the moment to be putting money into something that's not going to get them anything in return.' (Appendix B.13)

For smaller organisations, a trial like this is a good opportunity to raise their profile. Peter Bradshaw of United Christian Broadcasting said they were

'on target to go as part of the DBDB which is starting in June of this year, as long as nothing stops it between now and then and as that expands then we will go with it. I also should say that we are on in Waterford and have been for the last two years.' (Appendix B.10)

In communication with ComReg on April 18 2012 (Appendix E), they were asked if there was a limit on the amount of trials that are given for certain technologies. Their reply was

'No limit has been set as such however we would be keen for the test and trial licensing scheme to provide applicants an opportunity to experiment with new technologies /techniques rather than duplicating previous tests/trials. Each application is dealt with on a case by case basis.'

They were also asked:

'The D.A.B. trials that are starting this June, they are for a year? With transmission sites in a couple of places ? Will this be the last D.A.B. trial or does that depend if someone applies for another trial licence?'

To which they replied:

'ComReg as yet has not issued any test/trial licence for DAB to start this June. As mentioned above each application for a test and trial licence will be dealt with on a case by case basis.'

On May 1<sup>st</sup> 2012, Dusty Rhodes sent an email from his website digitalradio.ie stating that

'With the imminent re-launch of commercial DAB inIrelandit's time for change.

From June this website for Digital Radio Ltd will be centred on the new digital radio stations we're offering.

Rather than closing down this feed, if you subscribe by RSS or email, you will continue to get updates on DAB transmission inIrelandfrom our sister company DB Digital Broadcasting...

Thank you for your interest and your comments. 2012 is shaping up to be the most exciting of years with the DAB/DAB+ commercial trial starting in July.

(Appendix E.2)

Dusty Rhodes' company with Joseph King, DB Digital Broadcasting, issued a statement through their email subscriber updates stating that 'January 2012 started with confirmation from ComReg of our trial licence for DAB transmissions' (Appendix E.5) They will operate transmitters in Dublin, Cork, Limerick and Galway.

Going by this statement though, Rhodes said that 'For Irish broadcasters we have avoided general simulcasting of FM services' meaning that for those taking part, they will have to produce separate content. This maybe to try a sub-channel system. Stations involved are 'going through a content licencing process with the Broadcasting Authority of Ireland which should be complete by June.'

DB Broadcasting will be using multiplex equipment by Factun Electronics, a Swedish based company, Rhodes says 'Their mux is capable of encoding sixteen different stations in DAB or DAB+ as well as supplying DLS, DL+, EPG, Slideshow, TPEG and more right out of the box'

The second quarter of the year should see the following happen as the trials roll out.

'Phase 1 Dublin July 1st 2012

Phase 2 Cork & Limerick Q1 2013 (Subj to site upgrade works)

Phase 3 Galway TBC'

The full text of this statement can be found in Appendix E.5

## Chapter 10: Conclusions

I hoped that this body of work would form a snapshot of what the Irish radio landscape is now and how, through my research, this might change over the coming years. I feel that I have captured the uncertainty of what is happening in Ireland but from speaking to different people in the industry, can say that I have also captured their love and enthusiasm for radio.

With all my research combined, I can say that FM radio has still a long life expectancy in Ireland. As Dave Timpson stated 'Don't underestimate the power of FM and how important it is...I would say we can come back and have this conversation in 2025, FM will still be here, there'll be loads of other platforms, FM will be just there along with all the other platforms.' (Appendix B.8) The possibility exists to incorporate Radio DNS into our current FM broadcasts and this could save a lot of money as a new digital network would not have to be built.

Money, lack of legislation and decisions about the format of digital have been the stumbling blocks for digital radio. However, I am very excited about the app for smartphones that Dave Timpson from RTÉ mentioned (Appendix A.8). Whenever 4G is rolled out in Ireland, this will undoubtedly have an impact but I feel as RTÉ are working with IDAG and two other national broadcasters, this app may become a major factor in how we listen to radio in the future.

Of all the digital terrestrial platforms, I feel, DRM should be seriously considered as it has the flexibility to cover greater bandwidths and especially for bigger landmasses, to cover a larger area, maybe Europe as a whole. It also elevates a major problem for broadcasters, money. DRM has been made in such a way that it can use Short Wave, Medium Wave and VHF frequencies. As transmitters and equipment are already part of many country's infrastructures, this will cut costs for broadcasters. As an open source platform, it also means that any technical specifications are freely available to developers and this also can bring costs down and how the digital signal is encoded on a microchip makes it relatively inexpensive to put in receivers. It is worth noting that DRM has already made steps better, in my opinion, than DAB. It is a major boost to the platform to now be available in cars in India.

From my research, including what the BAI have set out in their Work Plan, it looks like digital radio is more than likely addressed in 2013, after the analogue television switch off. By the end of 2013, hopefully, there will be some indication of whether DAB/DAB+ licences will be rolled out along with

confirmation of whether Ireland will be using DAB or DAB+. (Chapter 4.3)

I do agree with the Radio Spectrum Policy Group in Chapter 2, the marketing of digital radio is very important and in Ireland, it needs to have a full campaign, much like that of Saorview to inform the population.

During my research, one point that came up was how we class what we are listening to. If you're listening on your phone, are you still listening to the radio? The BAI are now issuing sound content licences (Appendix E.5) so instead of using the word radio to describe the content, should we be calling it a 'live audio broadcast' or a 'live visual broadcast'? With the convergence of digital platforms and the rate at which technology moves and new gadgets appear, it seems that it no longer makes a difference to what device you consume your content on. More important than ever, is that your content has quality.

I thoroughly enjoyed this project, I've enjoyed speaking to everyone within the industry, learning about new technologies and letting my inner 'radio anorak' shine through. The aim of my thesis was to give a clear snapshot of the current climate and attitudes, from broadcasters, to digital radio in Ireland. I feel that I have achieved that. I wanted to immerse myself in the industry and I feel now that this immersion has given me a result to be proud of.

### ***10.1 Further Research***

There are lot of opportunities for further research in this area and especially so after the Digital Switch Off for television. No one yet has the cost of a full national DAB network, it would be interesting to calculate how much the cost of IP radio streaming to the nation in comparison to broadcasting terrestrially though FM and DAB.

There are points within each chapter of this thesis could lead on to further research. I feel that I have just tipped the iceberg of Digital Radio in Ireland, there is still much work to be done including researching marketing strategies for broadcasters and niche stations, especially if they are to move to digital radio.

I also think that now is a perfect time for our legislative authorities to look at how DAB/DAB+ has been marketed in other countries, Australia being an example. Within their government, they have a focused department, the Department of Broadband, Communications and Digital Economy ([www.dbcde.gov.au](http://www.dbcde.gov.au)) while DigitalRadioPlus.com.au provides Australians with a user friendly informative website on digital

radio.

While looking at internet statistics, it seems that as the population gets older, more people will listen online, as they will have grown up with the internet. With the MRBI now releasing these figures, it will be interesting to study how they change over the next five or ten years. 4G technology could also change this.

It would be interesting to see how people actually view their radio content, even if they are listening on another device. Has the convergence of technologies for mobile phone and radio use confused people or do people prefer one device ? If a smartphone offered different types of radio receivers, would that influence a buyer?

It is an exciting time in Irish radio and a very exciting time for convergence of platforms. I hope my work will be beneficial to those interested in the field.

## ***11.2 Limitations***

I found that my interviewees were open with me and willing to share information. However, there were a few occasions where they hesitated. The biggest reason seemed to be that the stations themselves, although, they knew how many people were listening online, did not know for certain, if the JNLR question about internet listening asked was separate to or included in JNLR figures.

There were also a couple of occasions where the interviewees asked not to be quoted or asked for part of a conversation to be 'off the record'. The reasons here were that they were speaking for themselves and not the organization they represented or the information was 'commercially sensitive'.

I also found that, especially towards the end of the project, I had to keep a very close eye on the radio world as my thesis topic was so current, it could change at any moment. That proved to be the case as I had to add information to Chapter 9 on the morning my work was due to be printed.

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## Appendix A:

### List of Interviewees

#### ***Interview 1: Dusty Rhodes, DB Digital Broadcasting***

Dusty Rhodes has been a supporter of DAB radio and is due to run DAB trials in June 2012 under the business name DB Digital Broadcasting. He has been a broadcaster and radio content provider for many years and has interesting ideas on Hybrid Radio. (Appendix B.1)

#### ***Interview 2: Andy Green, Brendan Kehoe, Total Broadcast***

Total Broadcast are a Waterford based company who have been running a DAB regional trial. They were the first independent company to successfully run an independent DAB multiplex in Ireland. Their inclusion was vital as they have an everyday working knowledge of multiplexes and DAB technology. (Appendix B.2)

#### ***Interview 3: Robin Crowley, Gaydar Radio***

I chose to speak with Robin Crowley, Programme Controller of Gaydar Radio, as Gaydar Radio had evolved from an online dating site to an award winning digital radio station. Gaydar Radio is part of the Qsoft Group and they are a specialist station with a alternative business plan. (Appendix B.3)

#### ***Interview 4: Donal Quinlan, Cork FM***

Radio stations vary in size and I felt it was important to include a community radio station. Many community stations already have full time licences. Cork FM still operate on temporary thirty day licences, they broadcast only at weekends when on they are on air. I felt it was important to include an interview with their Station Manager, Donal Quinlan in my research. (Appendix B.4)

#### ***Interview 5: Paul Campbell, Amazing Radio***

While looking at the future of radio, I found that Amazing Radio have a different business model than I had seen before in a radio station. They broadcast on on DAB in the UK and online through

amazingradio.co.uk, however they have recently launched on the U.S. market and have adapted new technology for their online player. They are also looking at the possibility of then launching FM stations in some U.S. cities. (Appendix B.5)

***Interview 6: Greg Parke, BuzzRadio.fm***

Setting up an internet radio station can be very low cost. Greg Parke set up BuzzRadio.fm in 2009 and now has one hundred and sixty thousand listeners a week. Buzz Radio is branded as 'Northern Ireland's Number One WiFi Station.' (Appendix B.6)

***Interview 7: Garvan Rigby, Spirit Radio***

Spirit Radio are arguably Ireland's biggest specialist station, broadcasting on FM and by Summer 2012 are due to be broadcasting on DAB. With a national AM licence with FM fillers, I felt it was important to see if going a DAB route was of interest. (Appendix B.7)

***Interview 8: Dave Timpson, RTÉ***

Dave Timpson is Platforms Coordinator in RTÉ. I felt it was important to speak to him as RTÉ have been running a DAB service in part of the country. It was important for me to find out where RTÉ stood in relation to the commercial sector following onto DAB. Mr. Timpson's extensive knowledge of the technology and of how things work within RTÉ is also extremely important. As RTÉ is the Irish Public Service Broadcaster, I felt it was vital for them to be included. (Appendix B.8)

***Interview 9: Pat Balfé, Head of Technical, Communicorp***

I was extremely conscious not to have any bias in my research and to treat each organization equally and fairly. Therefore, I felt it fair to ask to speak to someone from Communicorp, who operate Today FM and Newstalk nationally, amongst other local radio stations. (Appendix B.9)

***Interview 10: Peter Bradshaw, United Christian Broadcasting***

United Christian Broadcasting do not have an FM licence within Ireland but broadcast to Ireland through cable, online and satellite. They also have taken part in the DAB trials held by Total Broadcast and have

said they are taking part in DAB trial which are due to commence this June. (Appendix B.10)

***Interview 11: Gregory Orton, Solaris Mobile***

Solaris Mobile are a Research and Development company in the area of satellite technology who have their headquarters in Dublin. One of the areas they look at is radio broadcasting. It was important for me to speak to Solaris to gain an understanding of satellite technology as well as the benefits and advantages for satellite radio as an alternative to DAB. (Appendix B.11)

***Interview 12: Denzil Lacey, Zava Media***

As my research progressed, I became aware that many broadcasters were concerned about costs relating to bandwidth and internet audio streaming. I spoke to Denzil Lacey, who looks after radio station streaming to answer some questions I had about how streaming costs and bandwidth is calculated. His clients include 4FM based in Dublin. (Appendix B.12)

***Interview 13: Lisa Ní Choisdealbha, Independent Broadcasters of Ireland***

The IBI (Independent Broadcasters of Ireland) is a group which represents independent local radio stations in Ireland. Instead of speaking to each station about their views, I spoke to Development Director, Lisa Ní Choisdealbha, who has an overall knowledge of what their opinions are. (Appendix B.13)

***Interview 14: Simon Young, Presenter of The Beat Box on RTÉ, Network 2 and 2FM***

As I was looking at converging platforms and radio also broadcasting visually, it came to my attention that RTÉ did this in 1980s and 1990s, on a Sunday morning music show which was simulcast on Irish radio and television. Simon was one of the presenters during the show's run. (Appendix B.14)



## Appendix B:

### Transcripts of Interviews

#### *Appendix B.1*

*Interview with Dusty Rhodes, Digital Audio*

*Merrion Square, Dublin, February 27 2012*

(Not recorded, I explain to Dusty how I expect to break down my research into three sections, Broadcasters, Government and Listeners. From here I hope to determine where DAB is going in Ireland.)

**From your point of view at the moment, it says that there's a fifty six percent population coverage but that doesn't apply to the whole geographic country. What do you think is stopping it, is it purely the money?**

Just to go back to your first question about listeners and broadcasters and government and stuff like that, very much top of the tree, I would see it as, is the listeners. The reason I say that is because with digital radio, Dublin's not a bad market, it's not a great market. It's big but it could be bigger I think, but when you get down to Thurles in County Tipperary, that's like a really small market because you have a regional station and a local station and then you've got a handful of national stations. So, the choice of radio for someone in Thurles or in Kerry or wherever it happens to be, outside of a major urban centre is pretty poor. I think.

'Top of my list would be the listeners and where I see digital radio being able to help the listeners is in years to come, they should be able to turn on the radio and be able to get thirty to fifty radio stations to choose from and that could be from RTÉ Radio One down to the Cajun music channel (laughs) or whatever happens to be.'

**Would you consider that to be something like the way Norway are doing it? Isn't there supposed to be something like 3000 stations on?**

'The Norwegian one, just to fill you in, basically Norway has their own public service broadcaster and they were left with the decision, 'Right, what do we do? Do we upgrade the FM network that we have, which entails replacing up to 1200 transmitters across the country ? Or do we look at new technologies?'

So they looked at DAB and they said right DAB is robust, it's been around for a while, we can carry ALL of our national services on ONE transmission network, so there's a MASSIVE saving there. And when they looked into it more they didn't need twelve hundred transmitters, they only needed eight hundred. So there's a HUGE cost saving for the public broadcaster in Norway, which is why they have been getting on to the government saying they want to go with D.A.B and the government has turned around and said 'All right, grand. Essentially we want digital radio listening to be at fifty percent by 2017 and if it is we'll announce the turn off of FM. But even if it doesn't reach fifty percent by 2019, we're going to turn off FM anyway.'

### **The UK came up with the fifty percent benchmark as well.**

'Yes and what that is the fifty percent is the share of listening, or the amount of listening that is done to radio. So you will hear two figures, you will hear reach and you will hear share. Reach is how many people will use it for like, five minutes per week and at the moment in the UK, digital radio is reaching fifty percent so half the population will listen on some kind of a digital platform, at least once a week.

The share of listening, out of all the radio listening that is done, how much is done on digital, that is at thirty percent and that is growing all the time. The goal that they estimated, they estimated that they would reached that in 2015, I don't think that they will but I think they'll possibly hit it by 2017. So actually you might find the U.K. And Norway both being the first to turn off FM.

### **What's stopping Ireland ? Is it the population size ?**

No, what's stopping Ireland, nothing. It's just is the commercial will there or not ? and yeah, money. There you go, one word answer, that's what's stopping you in Ireland. The legislation is in place, licences are, the set up for licences is in place, the frequencies have been assigned to Ireland, everything is in place, the money is the problem.

RTÉ have set up their DAB service and essentially, they have set up four or five transmitters around the country and they've just put a full stop under it because RTÉ know that they can't do it on their own. It needs to be a concerted effort right across the radio industry, it needs the public broadcasters, it needs the commercial broadcasters, it needs the retailers, it needs the manufacturers of the radios, it needs the car manufacturers, everybody moving in tandem to convert to digital radio.

At the moment, it's just RTÉ on their own, so they're waiting for everybody else to catch up and where the money is the problem is that the commercial radio industry were engaged with a DAB trial in 2007/2008 but of course, as we know the recession kicked in and there were two things that happened.

Number one was the recession kicked in and advertising levels have dipped by maybe twenty five/thirty percent possibly more in some cases. So, they don't have as much money as they used to have and even worse is, all through the mid last decade, radio stations were changing hands for lots of money.

So now you've got the likes of TodayFM, I think the owners of TodayFM paid one hundred and fifty million for TodayFM but of course they are still trying to get back that one hundred and fifty million that they paid for the radio station in the first place in a market where revenue is down, maybe thirty percent. It's for money, the money just isn't there and the will just isn't there.

**For someone like yourself, you've always been pushing new technologies no matter what it is. One of the things I've come across is DAB and DAB+ and trials in Ireland and Ireland using different formats from England and using different formats from France...**

Essentially what it comes down to when you are talking about France and when you're talking about the U.K. and Ireland and everything, basically they are talking about formats, you know the difference between a .wav format and a .mp3, that's essentially what they are arguing about. DAB is a format which is called Mpeg Layer 2 or Mpeg 2, if you want, for a better word and that's what DAB is set up on and it needs a certain amount of space to achieve a decent bit of audio. But since then, the mpeg 4 format has come out and this is what Apple would base their AAC format on, right, which means you can still get high quality audio but in a much smaller space, it takes less space to deliver. And that is known as DAB+.

So essentially that whole broadcasting transmission system, how the transmitters work and how they get the signal from A to B, all that is known as the Eureka 147 platform. Because essentially back in the eighties was, let me think, FM was just kind of gaining ground in the early eighties and it was only becoming popular in the seventies.

All of the pirate stations were all on medium waves all through the eighties, it was only towards the end of the eighties, when local radio was established that they took a bold decision and said 'No! We're not going to do AM, we're only to do FM!' you know? But what happened was FM was prone to a bit of hissy noise in the background, it was also a problem when you were trying to establish national networks

because you needed lots and lots of different frequencies to accommodate all of the transmitters. Transmitters that are beside each other, cannot operate on the same frequency because they will interfere with each other.

So off they went and said 'We need to make a more cost effective transmission system, we need to be able to put transmitters close to each other, they need to be broadcasting on the same frequency, so that if the signals collide they won't interfere with each other but will actually join up and make a stronger signal, how the hell do we do this?' That's when they started looking at digital technologies and that's where DAB was born.

People are saying 'DAB has been around for a long time, it's not popular yet so therefore it's going to die'. I always remind people that FM has been with us since World War 2 and that only got popular in the early eighties, so, you know, it took forty years for FM to gain that traction. DAB is doing it in half that time.

**From your point of view, why are you pushing, what's so brilliant about DAB?**

DAB is good for the listeners because I think Irish listeners are dreadfully and woefully under-served by the system we have in place at the moment. So DAB is good for the listener and it brings more listener choice, I also think that it's good for the broadcasters because it allows them to actually expand their broadcasting operations. So you could have Radio Nova or Sunshine in Dublin, the country music station, why are they limited to Dublin? They could be national tomorrow on DAB and that would expand their market. Today FM, they are already a national station but they've got say, Jim O'Neill's Oldies show on a Sunday afternoon, so why can't they run an oldies channel, Today FM Oldies or whatever it happens to be?

They have staff, they have the premises, they have the technology, they have everything in play, all they really need is a platform, which means then you are getting into more kinda of niche programming which is actually a system that I like, which ties in very well with the internet at the moment. Niche programming is a very specialized, kind of programme. Oldies would be a general type of music but niche programming is going in, like the station we ran is like, 'All Eighties' or an 'All Nineties' station or and 'All Sixties' or 'All Seventies' or whatever happens to be. Or you know, 'Hot Country' is one format, 'Country and Western' is another format, 'All Love Songs', is another format and this kind of stuff. All these things are absolutely one hundred percent doable and they don't have to cost a fortune.

**If you're talking about your station, you're relaunching it?**

Yes, well, we have a new DAB trial coming along, I'm going to put 'All Eighties' back up on that.

**That obviously costs a lot of money to run, do you try to, even, break even or advertising or what way...**

Of course you do! If you're not running a profitable business, you're not in business, there's no point in running it like, you know. So, it has to be profitable but there has been a lot of advances in technology in the last twenty years which allows you to do an awful lot with computers and play-out systems and all that kind of stuff and you can actually run a radio station, comparatively cheap.

**There's so many radio stations online, just internet radio stations, that someone will question that if you can access it on the internet, why bother with DAB?**

You're talking two different types of transmission there. DAB is what's known as a one to many system, DAB is one to many, FM is one to many, television broadcasting is one to many. It means that you have one transmitter and there's a certain cost for operating that transmitter and it doesn't matter how many people are listening, your costs remain the same. Alright? So you could have one person listening or you could have a million, it's relevant, you have the cost of that transmitter.

The internet is one to one broadcasting which means that there is an incremental cost for every single listener that you have. The way I describe things with the internet on cost wise is that at the moment it costs, I think it's about one euro per listener per month. That sounds, really ridiculously low doesn't it?

**Put one hundred thousand listeners in and you'll know about it?**

Well, that's what I was about to say, Ryan Tubridy has two hundred odd thousand listeners, Ray D'arcy has two hundred odd thousand listeners, Morning Ireland on Radio One has four hundred thousand listeners, you know what I mean?

So that's four hundred thousand euro that they have to spend every month. Multiply it by ten and that's four million, almost five million a year to service that audience. FM costs one million. DAB costs less than half that. So, you know, you can see the numbers racking up. The other problem is, that people will

say, 'Awh, all you need is a SIM chip to be put into a car and people have access to the internet, wherever they go'.

Radio is, it's a mass medium, there are shit loads of people who listen to it. You know, this morning, you know, four hundred thousand people got up and listened to Radio One. And that's just Radio One, overall there was one and a half million people who got up and listened to the radio this morning. You know, if they all got up and listened on the internet, if they all did that at the same time, they would crash the internet. Not just in Ireland (make funny noise) but worldwide. Do you know what I mean, millions of people trying to access the same thing on the internet at the same time, it's just, it's baad. It won't work, you know?

### **They're trying to bring DAB radios into all the new cars in the UK?**

New cars in the UK come with, eh, are starting to come with DAB as standard and I believe that they have to supply DAB as standard from next year. But they're all doing it voluntarily anyway so.

### **Do the BAI or ComReg, once you get a licence, do they give you much guidance or update on the technologies or where do you get your information from?**

Well, that's not the role, ComReg, the role of the Commission of Communications, they're basically interested in the frequencies and what transmitter, at what location and at what power. Alright? They obviously have to make sure that no one is interfering with anyone else and that is their concern, end of. The Broadcasting Authority of Ireland, their only concern is the content that is broadcast on radio services within Ireland so technology really doesn't matter to them.

### **Ok, so it's up to you to make sure you know...**

It's up to the broadcasters to introduce what they want, yeah.

### **You own Digital Audio Productions, and Digital Audio..**

I've got a few, Digital Audio Productions is a content company so what we do is make radio programs, we make podcasts, we make radio commercials. Then I have an another company called Digital Radio LTD. Essentially what that company does is it operates digital radio services. So 'All Eighties' would be one of

the ones that comes in on that or 'Raidio RiRa', you know the station which we operate with that company as well, which is basically Spin in the Irish language. So that's the break up of the companies.

### **Who is DigitalRadio.ie?**

DigitalRadio.ie is a group that was formed by RTÉ back in 2007/2008 and that was a cross industry group so it included retailers, manufacturers,

### **They don't give much information about themselves.**

No, but that's back to the thing of, there was a certain amount of momentum up as far as 2008, then all of the commercial stations decided to bail out of the experiment altogether and RTÉ have been left holding the baby. So essentially, they have this information website, digitalradio.ie, there's not that much happening, there's not that much on the website.

### **I think the last thing I have to ask you about is Hybrid radio and pictures and other information coming through, DNS.**

You see, here's the benefit of DAB a lot of benefits of DAB, one is kind of for the listeners that we can get thirty to fifty radio stations to every listener, to every county in Ireland. That is a major benefit of DAB. The other thing about DAB is that because many radio broadcasters are using the same transmission network, it brings the costs of actually broadcasting down. So at the moment if you're paying one point one, one point two million for a FM network, you're going to be paying sixty percent less to broadcast on DAB to the same area. The third really good thing about digital radio is the whole data side, because it's digital, it broadcasts information, all right? So some of that information is audio, some of that information is pictures, some of that information is text. At the moment, the most basic of radios will just have a scrolling text option, which will tell you the name of the song that's playing now or the name of the programme or whatever it happens to be. In the U.K., they've gone a little bit more advanced with a thing called 'Slideshow', with which you are able to broadcast pictures that are associated with the programme being broadcast. It's called Programme Associated Data, PAD. Essentially, if you're listening to Rihanna, they will have a picture of Rihanna's CD.

### **It's like what you'd see on the internet now, with station media players ?**

Well, it's the same thing. DAB is like broadcast on the internet but it's on a much more efficient basis. What Capital radio in London use the 'Slideshow' for is, they show the status of the Tube lines. Just a little picture saying what's good and what's not running. There's other things then that you can do, there's DL+ and Journaline are kind of advanced text features where essentially you're able to broadcast a lot of text in one burst and then the user will decide what they want to view.

Say, for example, we decide to broadcast the top four news headlines, the latest sports news, the weather forecast and the business data or whatever. We can send that out in a couple of seconds on one page.

### **So it's like your Facebook or Twitter updates for your radio station?**

No, it's not social networking so it's not like that. But essentially, for basic information weather, news, sport, you're able to broadcast that and what the user is able to do, the screen on the radio will say 'Ok, what do you want to see, News, Sport, Weather or Business'. Then, you just touch the screen, or click the screen or however your radio works and then it will show you, news information or if you decide you want to see weather, it will only show you weather information. I call it 'Passive Interactivity' because it doesn't need to be interactive, you don't need to be connected to the internet to say what it is that you want to look at but you still have a choice of what you see on the radio screen.

### **Did you see the Top 40 Countdown on BBC Radio One yesterday?**

Oh God yeah, I saw the Press Release saying that he (Reggie Yates) would be the first radio DJ, that when he pressed play, he would actually be pressing play on a DVD player or whatever it was to play the video. It's just like, lads, there's a difference between radio and television, and that's more television, that they're doing.

### **It's nearly like the Beat Box?**

That's exactly what I thought, Barry Lang, with his big mustache on the Beat Box, was doing this twenty years ago, now the BBC are going isn't this wonderful. We're doing television on the radio, we've been doing it for twenty years in Ireland for God's sake. And it's not radio, it's television, they've gone down more the television route. They do some good stuff on, you see there's.. I'm trying to think of what the term is that's knocking around.. for visualizing radio or visual radio, I suppose.



Radio is a great thing to have on, keeps you company and gives you information, you can have it on in the background and you only need to listen to it, while you are doing other things. What digital does is bring in the opportunity for the listener to bring in more from their radio set, if they want it. So, if you're pottering around and a song comes on and you're like 'I wonder who sings that ?', you have to look on your radio screen and it will say it, do you know what I mean?

Or they might be doing an article or the news headlines might come on and they'll say there's more on this story on your screen right now, you can go over to your screen and get whatever it happens to be. Or maybe a news story will say 'Such and such happened, there's a picture displaying on your radio right now.' it could be just a still picture, you're only going to go over and look if you want to see it, whereas if you start playing videos and webcams in the studio...

### **What do you think of webcams in the studio?**

Well, what are you doing? Is it a television show that you want people to sit down and watch or are you doing a radio show? That seems to be some kind of a mash up between the two and that's not great because the presenters in the radio studio then start playing it up for the cameras, almost kind of leaving out the radio audience altogether, so that's bad. Also on the bad side, anybody who is watching, it's not a television studio, it's a radio studio and there's nerds there in the studio with headphones on, it just does not look appealing, you know what I mean? So it's falling in between the lines, either do television and do it brilliantly or do radio and do it brilliantly.

One of the things about radio is it's the kind of medium where you just use your hearing and you can do other things while you're listening to the radio. Having the data on the screen, if somebody wants to look something up, it's there, well and good. But actually saying 'no, come here and look at the radio to see what we're doing', that's television.

I do think they have made some advances, at least some advances over the years, it used to be a web cam, which would be stuck in a corner and just take a picture once every minute, like, sure half the time there's nothing going on in a radio studio. Ninety nine percent of the time, there's nothing going on.

What they've done now with Spin and Newstalk and BBC Radio One is they've now put in multiple cameras and it's able to know which person is talking so it will turn on the appropriate camera for the person who's talking and at least that is a huge improvement. But, again, the thing is, you know, radio

plays a lot of music, you've got four or five songs in a row, then somebody comes on and talks. What are you looking at while the songs are on? There's somebody in there looking at a computer, picking their nose. I don't think it's great, I don't think it's great in some ways but what it is brilliant for is and this is where there is a great use for it is if you have a radio station and you've got, One Direction, in the studio with us, yes absolutely, video it, have the cameras there, just use it selectively. Don't have it on twenty four seven.

## ***Appendix B.2***

***Interview with Andy Green, Brendan Kehoe, Total Broadcast***

***Waterford, March 13 2012***

**The interview starts just with Andy Green, Brendan Kehoe joins later.**

**Can you tell me about the DAB trials you have been running?**

**Andy Green:** It's an area that I'm very interested in, we're pushing forward with our own DAB multiplex and we've just got a renewal of our licence for a third year and we've had to keep it reasonably quiet because when we got the licence from ComReg, they said 'This is a trial licence, it's not a public service licence and we don't want you publicizing it, do not go out saying... You cannot charge broadcasters for being on it, you can get a contribution for helping, but do not think you've got a licence to run DAB. You've got a trial licence.'

That's ok, we did our own thing, in the trade press you can have bits about it and you can put it on your website but you cannot advertise it for service. When we put it on the air three years ago, it caused quite a stir because the accepted wisdom was that unless you had hundreds of thousands of euro or pounds, you couldn't do it. It was an expensive toy and a lot of the broadcasters said, 'We can't do it, it's too expensive, not interested'. A lot of the FM broadcasters actually, are not interested there's almost an evangelical for and against and if you read the blogs and so forth on the internet, there's people who are firmly against DAB and there are people who are pro it as well. A lot of the anti people say 'The reception's not as good, the quality's not as good, etc'. Reception may be an issue but quality is not an issue, it's good enough quality. Where most people are concerned, it's absolutely fine, I mean, I've got what I would consider audio ears and I think it's perfectly acceptable if not even a noticeable difference in the car, on an ordinary radio, possibly if you had a big expensive HiFi maybe you'll hear a bit of difference.

**The lowest most stations are going is 128kps?**

Yeah, it is but having said that you can make a mess of it quite easily.

**That comes into play with your encoding?**

Yes, it does. DAB in the UK has got a bit of a bad rep in some areas simply because stations are not making any money out of it and they tend to compromise on their programme feed to it and that's what we found makes a huge difference to it. If you have a poor feed to the thing, it's got a poor audio

processor followed by, I don't know, another mp3 link to it to the transmitter site, then the two cascading one another..

**The same if you're recording audio you have to have something going through of a certain quality?**

What happens is if you encode something with a digital audio algorithm like mp3 mpeg1 layer 2 and then you cascade it with another one, the net detriment to the sound is actually quite a lot worse than if you like, the two individual degradations, side by side. If you listen to an mp3 at 128, you can sort of tell it's not as good as a CD but to all intent and purposes, it won't bother you, it sounds alright, you know. If you then send that to something else and record it on another mp3 machine and say for example, re-encode it, you'll hear an awful terrible distortion..The order of magnitude is higher, it will sound almost like it's under water, like a tap head with a phasey effect and that's the problem. People are sending a poor audio feed and we found if you send it really good audio, it can sound better than FM. It's irrelevant whether it sounds better or worse as long as it doesn't sound too much worse. As far as the listener is concern it's quantity not quality and as long as it's at a reasonably acceptable level, they'll listen to it.

**I was reading that some stations were having trouble with being broadcast in mono and not in stereo, in that purely their mp3s or whatever way they are encoding?**

There's several ways, a DAB multiplex can be mono or stereo, you can tell it whether, it's going to be mono or stereo. If you want to do it in mono you can probably drop the bit rate to 64 k, speech for the same perceived quality of 128, it's not the same but it's close. If you put mono out at 64 on a mono radio it sounds to all intents and purposes on a mono radio like 128 would because you're wasting the capacity to do stereo. Now, there is a bit of redundancy and it probably would be nearer to say 80k mono, 82k mono but it's very rare to use that bit rate.

The mono issue on it's own doesn't seem to bother most people, sad to say, I think it adds an ambience to it but most people are not really aware of what either stereo or mono is, they think it's two speakers and they're not really sure about it from that. It's not a huge issue, the main thing is that it's a poor feed, it really is, they've done something bad to their audio feed and you can listen to some DAB stations and they sound atrocious, especially in the North, if you listen to them . Drive up the M1 and listen to a few of them, I can't see how people can listen to them because they sound like a poor cassette recording. It sounds like someone's got an old cassette out from the bottom of their wardrobe and stuck it into old rubbish... and who's is going to listen to that and that is extremely bad and there are some that sound like

that but once you make a reasonable effort, DAB can some reasonably perfect and it's all down to content then.

You do need reasonable coverage now, there is a problem with it. I've got a DAB radio in my car and the first one I got in there, when it went weak it made a chirping sort of noise. When DAB fails, it doesn't fail gracefully unfortunately like FM. When FM fails it just fades into the noise and there is no one point where you could say well it's here now and it's gone there. With DAB it's perfect and then it's gone. If you're lucky with a modern radio it will just go quiet, which is not as intrusive but it's annoying but if it makes that chirping noise then people can't take that at all. Some of the early ones, it sounded like a bird chirping and I know if I had my wife in the car and we're driving along, the first time it does that 'Turn that off!, Gone, don't want it'. So, they won't put up with an impulse type interference, they'll put up with a lack of treble, let's say, or they'll put up with not so very good stereo but they won't put up with impulse noise.

**So then the way around that is to get more transmitters?**

More transmitters, the technology will probably improve for the receivers as well. At the moment there aren't so many transmitters out there because it's not a viable money making platform, if you like, to fill in all the gaps.

**From one multiplex, how many can you run. in the U.K. the bandwidth it's from 217.5 to 230?**

Well here it's wider than that, we're on 204.64, which is Channel 9B, come the end of this year the whole band is going to be opened up. There's channels, I think 6 to 14 and each of those has about four multiplexes capacity in it. In the UK at the moment, they've only got 12 maybe 13 because that they don't use it for TV in the U.K., most of Europe does, including Ireland, we use it for RTÉ One and Two.

That's all closing you know this Soarview that's coming? Soarview is all digital, it doesn't use the band three, it could but it doesn't. It's not going to use the band three frequency, which is from 170 to about 230. It's not going to be able to use that so going to be clear and it's all going to be available for DAB if it was required to be. There not going to need that much capacity but there's going to be a limit on capacity come the end of this year.

**How many stations can broadcast then from one multiplex?**

It depends on what your bitrate is, it depends on a, what quality what you want...

**It's not like where you have channels on a desk and you have ten channels to use?**

No, basically what it is, is a data pipe of a fixed bandwidth and again Brendan (Kehoe – colleague) probably know this exactly. Of the top of my head, it's about one and a half megabits wide which means you can approximately have eight to nine channels of 128 qualityish. In and around that number. Now Brendan will tell you exactly when he comes in, that's the sort of stuff he stores up here.

It's in and around that but if you decide to use D.A.B+, they don't use it in the U.K. but they use it in Australia and Germany, anyone who is adopting DAB now has really this DAB+ standard and for that you can you fit twice as many channels in for the same perceived audio quality.

**That's with the AAC encoding?**

Yeah so you could probably have twenty channels of pretty good quality on one multiplex. Or you can mix and match, that's the beauty of DAB you can say 'Well, we've got a speech programme now but later on we've got a classical programme..' you can do that on the fly and the radio doesn't mind, it can cope with the fact that it changes. So you can divide it up differently, on the fly, depending on your wants and needs. I think BBC Radio 3 used to it in the U.K. and if they had a fancy concert they would up the bitrate to 256, whereas they normally run at 160. This is ordinary DAB which is mpeg1 layer 2, what people call mpeg2, mp2, but the correct definition is that...

**I have to ask you about this Australian letter you got, what did the government get in touch with you for exactly?**

It wasn't the government, it was the Australian Broadcasters DAB Association, basically when they heard that we put on an independent DAB multiplex and we were testing with DAB+, they were delighted because they were the first people in the world to put on DAB+ on a commercial service in Australia and they were just delighted that someone else was doing and they thought 'Yip someone else was furthering the cause'.

**It seems to be pushed by public service broadcasting..**

Now it is but at the time, three years ago no one else was doing it and they heard about us through the grapevine and said 'Thanks very much', that was that we got a lot of interest from that.

When we came on with our multiplex a lot of people thought it couldn't be done, as I said to you on the phone, there was a lot of people who said 'Oh I can do that!' and you'd say 'Okay, where is the technology to do it?' and they'd say, 'Oh I haven't the time', you know what I mean? It was vapour-ware in other words. Now you could go off and buy the equipment from commercial providers and they'd say 'yes the multiplex that would be thirty thousand please and a transmitter, how many would you like? Well, they start off at twenty thousand each and that's for a little tiny one for a fill in, up to fifty thousand for one that would do a town sized thing, then you want aerials, that's this much and we'll come along and do a management...'

Before you knew it, you were talking hundreds of thousands and what happened was Dusty Rhodes, he was on the original RTÉ trials, the commercial trials in Dublin about four or five years ago. RTÉ had their own multiplex and they also ran a trial one which ran most of the Dublin stations on it and a couple of Dusty's stations on as well. He thinks, it's brilliant, is DAB and he thinks the future of DAB is all interactive texts and adverts and this sort of thing. Now, I'll talk to you about that in a minute because I disagree with him but however he thinks that it was brilliant. When the trial ended RTÉ said, 'Want to do it again? A hundred grand please, per year'. So he said 'Well ah'. And he tried to get people to do it, tried to round up seven or eight stations at twelve grand a piece to do it and of course the recession was just trying to bite in and no one is going to give you that...

**These trials lasted for how long?**

A year, okay, he tried to round up the money and no body's got it.

**So RTÉ were looking for one hundred grand a year. I have a show on 2XM, I haven't spoken to anyone yet about all this, but yesterday for the first time they went live with Dan Hegarty's show from 11-2 and it seems that they want to do more with DAB now. It seems like they're thinking that we need to do something or it's just going to be left sitting there.**

Well, exactly, RTÉ is a huge organization and one half doesn't know what the other one is at and to be fair it wasn't RTÉ that wanted the hundred grand, it was RTÉNL, networks and to be fair they've got their budgets and they probably sat there and said 'Yeah it's costing us this much in electricity, we've paid this

much for the transmitter.' and NL have been told to go off and make a profit.

They're supposed to rent out all their transmitter sites to TodayFM and anyone else that wants to use them and the phone companies and they're supposed to make a profit, to subsidize the huge costs of these transmitter sites and all the main sites have gotten new aerial masts this year because the old ones were built in 1961, they're fifty years old and typically each one has cost them millions to replace. You know, you're talking about a three hundred foot mast on the top of a three thousand foot mountain. It's got to be able to stay there for another fifty years, they're engineering that into that, they get a German company in.

### **It can't come down in the next storm..**

It can't. I've been up to some of these sites and it's mammoth engineering, I'm not surprised it's costing millions, literally to do it. So, they've got all of this kind of expense and they want to maximize their profit and also the way RTÉ do things is probably different to the way we do things, they have a semi state way of doing things, which are way more expensive.

### **Two million forms to sign..**

Yeah and we need three fellas to do this and it's an expensive way of doing it. It's the Semi-States, BBC would have been exactly the same, any semi state. The way they do things is times ten in costs against any commercial broadcaster. Now, you get that extra little bit of quality and extra little bit of reliability but it's the law of diminishing returns. You buy a car you will get a car that can do pretty well for ten grand, you pay twenty grand, it's not twice as good a car, if you pay forty grand for a car it's not four times as good a car.

So we said, 'I don't know why it should cost this much' and I got in touch with a few people who said 'Yeah, I might be able to do it but I haven't done it yet, can't tell you because I'd have to kill you', this sort of talk, you know what I mean? So, we said 'There must be a way', so we looked into it seriously and figured out how to do it and got the technology together, did a test broadcast in our place here and thought 'Great, brilliant' and applied to Comreg for a test licence. They allow trial licences for any technology, doesn't matter what it is, you could come up with a new widget for mobile phones, as long as it doesn't interfere with anyone they'll give you a licence.

It's pretty go ahead really because if somebody wants to trial a technology, it's bringing the technology to



Ireland, so it's a good idea and it does seem to work quite well. If you're a phone company, making a new mobile phone or 4G technology or something, then let's try it here in Ireland where you just have to fill in a form. Yeah, bang. There's plenty of open space, you're not going to interfere with someone in the next country too much. You've got the U.K. but you've not got Luxembourg, France, Germany, everyone with their own regime who are going to get upset by something that is none standard. It's ideal for that.

So, we got the licence, put it on the air and went, 'Wow'. I phoned Dusty up and said 'We've done it, mate', 'What do you mean you've done it?', he was quite put out because it wasn't him who'd done it, he was pleased but on the other hand he was a bit miffed that it wasn't him that done it, you know what I mean?

**But while Dusty would be pushing it, wasn't he into the production end of audio stuff, making programmes, content?**

He would but he was trying to say to us, 'That's brilliant lads but you're not into the content or the management, you just want to sell the transmitters, don't you?'. And we were 'No, not really', and he was 'Ah you do! You do!'.

I became an engineer because, first I wanted to be a musician but I weren't good enough, then I became a DJ, then to get on a pirate radio station in the U.K. in the late seventies, unless you were Tony Blackburn's nephew, you hadn't a hope of getting on radio. Because, there was like one station in London, one station in Birmingham, one in Manchester and that was it. It was nepotism city, like, you weren't going to get anywhere so the only way to do it was pirate radio or come to Ireland, which is what a lot of people did, or Radio Caroline, on a ship, Italy was another place that had an open radio regime. There were a couple of places but if you wanted to get into radio, that's what you did, largely.

We got it up and going and there was great interest, from right around the world really, in anorak circles or technical circles, there were quite a few people quite impressed really. 'It's on the air and it works and they've done it, obviously if they are subsidizing it themselves, it can't have cost that much' and we sort of proved that it needn't cost, it's still going to be expensive but it needn't cost you one hundred grand per year per transmitter or anything like it. We haven't done the exact figures but we would say probably, if you were to build a multiplex for the southside region with proper coverage you could probably charge thirty or forty thousand per station a year, for good coverage of the ...

**That's nothing! I'm really surprised it's that low.**

Well, if you're in the north or in the U.K., they pay something like one hundred and sixty a year and that's too much, the market is not there for that sort of money. It could be, there's no reason why it's not, a National multiplex, obviously you charge more but a regional multiplex, we reckon you could probably charge twelve or fifteen stations that sort of money and it would be viable, you could do it. And that would give you good coverage of the population, all the major roads and everything like that. Now, the BAI are not interested at the moment.

### **I can't understand why people aren't using it.**

Well it's unfortunate when you consider that radio stations have no money now.

### **That's one persons wages a year.**

Well, there letting off people you know? But the dual problem is the B.A.I. are not interested because they've said 'Well, we've asked the broadcasters and they don't want to do it' and that's a bit like asking a turkey do you want Christmas here? Why would the local broadcasters, there's nothing in it for WLR, Tipp FM, to get an audience outside their area and they certainly don't want they competition either, why would they? Understandable, who we've found most interested in getting on their marks were people like Sunshine, they're a niche market, country. We've got UCB, they wanted to be on it, they're very keen, 'Ok, fine', there are people who like that kind of thing, the only way DAB is going to work is to give people choice. In fact, the only way radio is going to work is to give people choice, not more of the same choice which is largely what you've got in the UK and in Dublin, everyone is desperately trying to get to the middle ground, even Nova.

We know the guys at Nova very well, Kevin Branigan is a good friends of ours, but he said 'Look, the board of directors have got a Programme Director from Australia that you have to have, you have to have a PD from Australia on all the stations in Dublin, traditionally, and he's constantly trying to pull it towards 98FM land, bit of a battle going on , Kevin's like 'hey hey, hang on there a minute mate' and though, he owns a good portion of it, him and Mike Ormonde, they've got to answer to shareholders and they've got to make the thing pay but em.. anyway..

Sunshine are interested in it, he's fairly interested in it, Kevin is, Nova going worldwide, 4FM, they're fairly interested in it, now none of them have come forth with that sort of money yet, but I'm sure if it was

licenced they would pay that sort of money they could justify it because you could advertise it, you could have billboards..

**I know it's still a lot for let's say a community station but ...**

At that kind of money I don't think you would have too hard a time filling it up with people who could make a go of it. You know, you'd have a bit of a struggle especially in Ireland at the moment because most people don't know what the hell DAB is. Tesco's are full of DAB radios and no one knows what the hell to do with them and if you buy a DAB radio out of Tesco's, switch it on around here, unfortunately you're not going to get our multiplex unless you push a few buttons because a lot of the ones are set to tune to their own channel, which I think is 12, or whatever it is in the U.K., which happens to be the same as RTÉ's channel as well. Unless you tell it not to do a local scan, most people aren't going to read the instructions, they're just going to turn it on.

**I was looking at how DAB is marketed in the U.K., all the simple things, but they work including a website with nice bright colours.**

It's worked reasonably well in the U.K., I mean again, coverage is not quite good enough everywhere, it's not bad and there are a lot more radios over there and people generally do know what it is. My parents live in the U.K., they've even got one and listen to a bit of stuff on it here and there.

**And there going to be in all new cars, now?**

That's debatable, if there hadn't have been a worldwide recession they certainly would have been because Ford and Opel/Vauxhall had 'Look, we're going to put them in', I think they may have rowed back a little and are now saying it's an optional extra in some cars but it's starting to get into cars now. That's the key to it, I think. Although there's only 20/30% of people listening in cars, if you look at the research figures. 20/30% of listening in cars but it's very important listening.

**I spoke to a guy called Greg McQuaid, producer of the Breakfast show on KFOG in the Bay Area in California, their peak listening and advertising comes at peak times, when people are listening in cars. Other countries and other cultures have different ways of using radio, a lot different than we do here.**

They have a lot more commuting going on in the States so you drive for longer, so it's very important in the States, radio listening. In the U.K. it's fairly important because people do drive, I don't know what the average time is but typically forty or fifty minutes to work if not more, whereas here, I suppose in Dublin, there certainly is the commuting thing a bit less so outside Dublin, still it's important and people still do listen to the radio and it's still one of the areas where even if you can have a CD or even is you can have your iPod plugging in, sometime, it's 'Ah', just turn it on, 'I'm late', they'll just scan through the buttons. It's like my daughter who is twenty and she never listens to the radio except when she's in the car and she's well into music and that. If she wants to hear a tune at home, YouTube is what she'll put on.

Surprising, I know it's meant to be video but if you want to hear a song the easiest search engine to find a song is YouTube and the fact that there's a video is coincident really, you know? If you want to hear a song, it really is easier to find it on YouTube, otherwise you get all these bogus links that make you want to subscribe to... ah forget it!

If they get the car radio thing cracked, now, they need to get on with it because technology moves so fast that in ten years time, if it's not established, then God only knows what we're going to have, that's the point.

There's a lot of people who say, 'Ah internet radio, DAB. is a waste, internet radio is the way forward'. Now, I can't see how it will be the way forward, in the house, I think it probably will be.

**I got an iPad and I've found that since then I use TuneIn and internet radio more than I ever would have and it's just constantly on.**

In my house, my wife has one, she knows it's an internet radio, it doesn't bother her we just happen to have one because FM is a little bit scratchy in the kitchen and it's easier to listen to TodayFM on the internet. You know, you've got so much noise from your typical house these days and radio doesn't work as well in your house as it should do, with wireless and stuff, it's almost easier and if the radio is always sat there, it's a WiFi link up to the internet, it works. But in the car, I can't see how it can possibly work because although you can put your iPod in the car and go around listening to the internet, if you've got 3G, it works reasonably well. If fifty thousand people try to do that, it ain't going to happen, or ten thousand or even a thousand in a small geographical area to one stream of a station, a, the stream probably hasn't got that capacity and b: the circular networks, 3G, will be bogged down, they're not designed for constant streams. If you're listening to that, each radio has it's own connection, it's a very

very inefficient way of connecting a listener to the listening source.

**And its going to be more expensive to the provider then?**

Exactly, if you have noticed or maybe you haven't all the cellular companies, although they are trying to get you to get data bundles they are actually limiting you to the amount you can download all the time and that's because more people are doing it. The initial early adopters of iPhones could do what they liked, my package, I was an early adopter and I'm warned by Brendan, who knows about these things 'Do not ever accept anything different that they offer you with your package' because they are constantly trying to trick you into an upgrade and they will trick you to losing your unlimited data.

**I questioned 02 about that, I'm currently on 2GB of data but if I go into another contract they want to offer me 400 minutes, 400 text and 700MB of data for fifty euro.**

But you'll never get the 2GB again, the same with Vodafone and they try to trick you out of it in various ways 'We've upgraded you to the new package', no you bloody haven't! The point is why should the cellular provider pay the cost for the transport stream. They are not going to pay for it, they are not going to pay the transport without the listener having to pay to listen to you. As soon as it starts to get in any way significant and it already is, either they will limit it or they will charge you huge money, that's a dead end. And even 4G technology, which they are all talking about , which supposedly can do it, it still needs a lot of cells and infrastructure. Even if each 4G node can connect a hundred people, listening to the same stream, for arguments' sake, it's still no where near ten thousand. It's not unusual for one geographical small area, on a road for example, ten thousand people in all the houses are trying to listen to the same cell. I can't see it happening to be honest with you and again, it's only going to work in densely populated area where they can have a 4G cell every hundred yards.

Already, if you try to listen to 3G stuff on your phone, driving around, forget it, don't work, it's dropping out, it's stopping, it's starting, there's areas where you haven't got coverage. We've got two radios in our jeeps and just for instance, we've listened to streams, driving along and one guy will have it in front and the guy won't get it behind because the cell is kicking someone else off. It ain't going to happen, in real terms, maybe in thirty years they'll come up with some way of doing it but in the near term, it ain't going to happen.

**I want to ask you about DNS radio text and the likes, how does get transmitted, is it from a playout**

### **system like RCS or how?**

Basically what happens is, it's not unique to DAB and we've got it running here on a couple of stations. What happens is FM or DAB has a unique code which identifies the programme and the particular item on the air, it doesn't say this is a track called so and so, it's an identifier. Your unit has to be connected to the internet for this to work, now it doesn't have to have a very good data connection but it does have to get to the internet and basically what it does, is it goes off to the DNS server and looks at what we're listening to and you'll get extra information from it and it doesn't care whether you're FM or DAB we've got it set up for South East Radio, now unfortunately their DAB feed has fallen over today so it's not very well at the moment.

It's a very cheap thing to do and it's not at all expensive, it does add extra content and it's a cheap way of making extra content and it does add a lot of stuff and not a lot of hassle really. Not many radios do it but.. Just an interesting point about the manufacturers of DAB and DAB+ radios, because there's no DAB + in the U.K., Pure who manufacture radios, their base was in Luton. There's an airport in Waterford as well, what they did when they had to test a batch of radios was hop on the plane in Luton, fly to Waterford, get out of the plane, turn on the radio, make sure it worked on DAB+, get back on the plane and fly back to Luton. Just to test because we were the nearest place that had DAB+ running.

Now we haven't got it running at this very minute because DAB+ is still a proprietary algorithm to pay a licence fee to use it, whereas with the older ones you don't. We weren't sure if we were going to get our multiplex renewed, there was a fair chance but we didn't want to shell out the money for it and not be getting it back again so now we'll be putting it back on again.

### **So this test that's happening in June, how many stations do you think will be up on that?**

On Dusty's, I asked him about that. He's going to do a mixture of DAB and DAB+ initially, I think about eight stations. Initially, he's going to have to run a few DAB and DAB+ ones and he's got to have the Communicorp ones on there so that might tell you who's possible funding it, Denis O'Brien, I'd say. 'Oh no, Denis is not paying for it, it's me and BTS.' There's no way that they have the money to do this because they are buying commercial equipment. Even though it hasn't cost us one hundred grand a transmitter site even the way we've done it, it has cost us quite a lot of money and they are trying to do this times four or five. They are doing it this in Dublin, Galway, Cork and Limerick so that ain't happening without serious money.

Brendan Kehoe enters the office.

**Radio DNS and programme associated data are they output through your playout system, or how does that work?**

**Brendan Kehoe:** To be honest, it's not the easiest of things to explain because Radio DNS isn't just one thing. There is a few different technologies which people assume are all Radio DNS but there are actually a few different, sort of, how should we describe them? Standards. Radio DNS in itself only permits the linking a station on DAB or FM with an internet station or an IP address. There are other technologies then that work with that like RadioVis which is what lets you get visuals and text from Radio DNS look up which is probably moreso what you are asking me about. Then there's Radio EPG, which is another thing which falls under Radio DNS, which in theory lets you transmit an electronic programme guide with your programme information, just your daily schedule basically. But the way you can output visuals and stuff really depends on the playout system, some of them may already support. I've never seen RCS so I can't comment on that one.

In playout systems like Myriad, which we would be familiar with you can add things like album art to your cart, or text or whatever. Myriad has a separate programme called OCP which is basically an output control programme which lets you output all your associated programme information for your different broadcast mediums, for example, one. It can output text information which can update your RDS, your now playing information, another one can go to your DAB feed for your text services, your DNS, your dynamic label on DAB and potentially you can output the album art then to DAB. for a slideshow and things like that.

So basically if you look at an internet player, it's like all the information you'd see, the DJ's face, now playing. I t was a basic implementation we did for South East Radio because their play out system doesn't support any kind of ...

**Andy:** It's radiomation which is fairly basic.

**Brendan:** An unfortunate situation with our locally produced playout system. There are web based programmes that let you see the visuals that other stations are using for example like Capital FM in London. You see the technology behind it can be harmonized to some extent behind all your streaming mediums for example say an radio station is investing in an iPhone application, is their wise they'll use

the same source..

### **The same branding ?**

**Brendan:** Yeah, pretty much, that's what Capital in London does, they use the same slides basically that get sent out for RadioVis, which is part of Radio DNS for their iPhone app, for their radio player, player on the website. Everything comes from the same source, whereas other people seem to do it, one at a time, it's not harmonized, then it becomes more complex. There is a lot of commonalities as regards..

(Brendan's phone rings and he leaves momentarily - Andy is showing me the Pure DAB radio in the office)

**Andy:** There's a problem with 4FM at the moment because RTÉ's DAB is coded wrong, the identifying number, there's a number associated with each station, on FM. It's called a PI code, in DAB it's called something else. Basically each one is unique but when they were doing RTÉ's they did it wrong and they gave them U.K. codes for some weird reason and the also, for example Today FM is 2015 when RTÉ launched 2XM they went to the next one say 2016 when in fact it is 4FM's number. They just made it up and ComReg gave out to 2016, or whatever it is to 4FM so if you're listening in a car or whatever it is that is DAB enabled, if you're driving around trying to listen to 4FM it will jump to 2XM and vice versa because of this. We've told a few people a few people about it and nothing happened and we told J.P. Coakley. J.P. is very pro DAB and when we told him he was like 'What?, what?', I think he's trying to get it sorted but he weren't happy to hear that. The ensemble I.D. is basically what the multiplex code is and RTÉ's starts with C but C is a U.K. code, it should start with 2.

### **So who gave them that code?**

**Andy:** No one, they probably made it up themselves, they shouldn't have done, maybe they bought the kit from a U.K. supplier and whoever programmed the multiplex either they didn't know or, who knows? It could be that or I said to J.P. it couldn't be anything to do with trying to get listeners from the North on their DAB radios. It would think it was a local station. He said 'Oh no, definitely not', but I wouldn't be surprised if there was some thinking along them lines, somehow. Anyway, it's politics as well as ... that's nothing to do with 4FM and 2XM's thing. They followed the numerical series for existing PI codes that were used for FM. Today FM's is 2205 and they actually allocated that number to RTÉ Gold on the mux.



They're better off to change it now rather than later because the the longer they leave it there what will happen when they do change it is, people's presets on their DAB radios, it's going to ask them to retune.

**Brendan:** What will happen, for example Christmas FM, that was a service that was on our multiplex but is not anymore so (pointing at the Pure Radio) it's showing up a question mark in front of it. So what would happen is if we had just moved Christmas FM's code you'd have two Christmas FMs, one with the question mark, one without the question mark. The question mark obviously isn't available but if you had it stored as a preset it would keep the question mark one. If you keep pressing the preset button it would just come up 'Station not available' and you would think that they're not there and you mightn't retune right away.

**Andy:** What happens if you try to listen to 2XM on that now, is there an issue with that?

**Brendan:** This radio has an external aerial plugged into it so it can receive RTÉ's mux as well, sometimes you can't listen to 4FM but if we try to listen to 2XM on RTÉ's mux. (After a moment) This isn't receiving RTÉ's mux today.

### **Are the aerials susceptible to weather changes?**

**Andy:** Not really it's just that the RTÉ transmitter...

**Brendan:** RTÉ don't cover this area.

**Andy:** It's only a local one for Cork city we managed to...

**Brendan:** I think it's Limerick actually.

**Andy:** It's the local Limerick city one, only for the fact that we've got a high venn aerial on the roof but it's by no means easily receivable. We carry 2XM on our mux as well, anyway.

**Brendan:** But we had to create a code for that ourselves because you can't carry two services on one multiplex with the same identical code, so we basically had to use a code that wouldn't be used by anybody else for 2XM on our mux. It also means that anyone listening to 2XM on our mux in their car, if they drive into an area with RTÉ's they won't automatically pick RTÉ's because the radio sees a different code. It doesn't recognize names so it won't switch between them.

**Andy:** My car radio, you can switch on linking which means if you drive from an area where there is a DAB signal and not an FM or vice versa, you can jump from one to the other and sort itself out.

**Brendan:** It does that linking purely on the codes, not on any names or any text assigned to the station. If you're driving listening to 4FM, on FM, anywhere in the country and you drive into an area where you can receive RTÉ's DAB multiplex, the radio will automatically scan that, see a service with the same

code as the one you're listening to and switch to it, without asking you. Then it's 2XM or 4FM, it will just switch.

**Andy:** If it happened with FM, the same thing would happen, there are a couple of cases where pirates have got an RDS code and they don't know what they are doing with it and they've programmed it with a PI code, there's one in Cork, I was driving down there and some pirate decided to use FM104's PI code, probably not deliberately but they had and if that same situation happened, if that pirate then sold his transmitter to a numpty up in Dublin, then what would happen is the radio wouldn't know what to listen to. It's a problem, it's just on FM, people have figured out long since that you can't do that, you can get really strange results where as on DAB it's not been a problem because there aren't enough radios out there and almost no car radios in Ireland.

**Brendan:** I think certain people thought they were separate and that there was no commonality between them.

**Andy:** We don't know who, it was probably one part of RTÉNL or someone who set it up without reference to

**Brendan:** Dave Timpson told me that they just continued the code assignment and informed the BAI or someone, so it's probably the BAI that didn't realize that they were separate.

**Andy:** There is a future for it but it's by no means certain and that's the problem in Ireland, we're sort of pushing agenda but the BAI haven't been helpful, or are ComReg being helpful or the department, what's his name? Pat Rabbite, I'm disappointed in him to be honest.

**I want to try and see what would happen if they come to a point where they will turn off FM**

**Andy:** That's not going to happen. I don't think it's going to happen anywhere to be honest with you.

**Norway say they are just going to switch it off ?**

**Andy:** I don't think they will, I think they will just walk away from it. The only thing that may happen and it could happen in the U.K. feasibly but then again I wouldn't be surprised if it didn't happen is that they switch off BBC. No commercial radio station, even if they lose two percent of their listeners, they're not going to do it. There are so many FM radios out there, what would happen is you would have an underground.. Basically if London turned off half its FM transmitters, immediately the next day, there would be a hundred pirate stations, banging away, trying to get that audience and there would be so many of them that there would be nothing anyone could do about it. So, it would be a foolish thing to do apart from anything else and that would happen almost anywhere. There's going to be people with FM radios

forever more, if you search people's houses there's probably ten of them around the place, that ain't going to happen.

I think what has happened is that politicians have confused it with digital TV, analogue switch off, and it's not the same thing. There's nothing wrong with FM, it works fine for what it needs to do. In some ways, it's not as efficient as DAB in terms of spectrum usage.

### **And electricity costs?**

**Andy:** No, it's actually a bit more efficient to be fair. Now, a DAB transmitter isn't that efficient unfortunately, electricity in to RF out is about thirty percent whereas FM is about eighty or ninety percent. They're not as efficient, having said that it's probably not that significant in the general scheme of things if you run, if there's a hundred DAB transmitters using a hundred kilowatts, it's probably like a couple of extra street lights in some part of town. In terms of a country's energy use it's not actually that significant.

A point that is very significant, is that if they decide to go internet usage, it's been calculated that the energy needed for all these little micro repeaters is colossal and the servers and all the rest of it to sort it all out, it's a very inefficient energy wise of feeding people. In terms of if they decide to go along a mobile internet route, that is going to cost a lot of energy, there's only a few people that are starting to wake up to that side of things now but that's something for research. You'll probably find an article somewhere about it, unfortunately I can't remember where I saw but there's definitely people who have calculated, how much if they did decide to go the mobile radio route, 3 or 4G it would cost a fortune, not only in mobile providers but also in electricity costs as well. One hundred thousand people times this much bandwidth and they calculate how much a little Cisco server uses and it's a lot, it's a lot of electricity. That's another non runner for me.

FM is never going to be turned off, what will happen is 'We're going to turn it off next year.. Actually we'll extend it for another year or two' and that's what will happen and possibly they might turn the BBC off but all the commercial stuff and all the community stuff is going to stay on. The BBC, with a national network you've enough people but it's also chicken and egg, people want to listen to the BBC so much so that if they haven't got a DAB radio they'll go and get one because there are no adverts on it and they are by far the biggest listenership of radio in the U.K. I think BBC Radio 2, they will get their DAB radios and they have no advertisers to worry about like the commercials. There's no point in turning it off, it's not like the bandwidth for FM can be used for anything else, it's not like TV bandwidth

which is useful for mobile broadband.

### **There's nothing else?**

It's no use to anything really, the aerials are too long, it's not enough bandwidth to sell for broadband and some countries aren't going to turn it off and others will, it travels too far, so even if for arguments sake, we turned it off here, we couldn't really do much with it because we'd be interfering with the U.K. so it's a non runner, it ain't going to happen. Maybe in 2050, it might be insignificant but I bet your life there will still be someone on FM somewhere. AM took a long, long time to die, people said AM would be gone fifty years ago but it's clinging on, just about but I think it's had its day now really. But even in America, some of the top rated stations are still AM. That probably will change but I would say eventually between satellite and it will relieve enough bandwidth off the FM that the Ams will probably go, eventually being able to migrate to FM.

But the digital radio landscape is totally different in America than it is here, it's a failure there, apart from satellite. When You (Brendan) were over there I was saying to Brendan 'Well what's digital radio like' and you were 'I can find a radio anywhere'.

**Brendan:** Even in cars, satellite isn't that prevalent but at least it's an option.

### **Is it the landmass?**

**Brendan:** I'm not sure

**Andy:** The commercial model partly , part of the reason is, when I was there I drove from Los Angeles to Las Vegas and in Los Angeles it's brilliant, station playing everything you want and it's fabulous driving down the boulevard with the palm trees and the American DJ and it's just like the movies. You drive out the road to Las Vegas and you get one station. This highway radio and a couple of AMs very weakly until you get to Las Vegas and they start coming back in again. It's the commercial model, it's based on everyone gets a transmitter and there's big transmitters and small transmitters but you only get one transmitter. So basically if you had a big powerful transmitter and the height of the aerial was another thing as well, if you're allowed a hundred kilowatts from a three thousand foot mast, you were going to cover a hundred and fifty mile radius and that was worth money. When they came along with digital radio, they didn't want to do our model which basically means if you're on our DAB multiplex and if you're RTÉ and you're on the DAB multiplex, Tramore local radio is on it as well, there's no difference in

terms of coverage, maybe bandwidth, quality, whatever but basically they didn't want that because it ruined their business model. So they came along with a digital radio solution which allowed the digital signal to piggyback on of the analogue signal and it really missed the point. It goes back to the quality issue 'Let's do digital because it's better but it really ain't any better'. To people's ears it didn't sound any different so there was no benefit for people to get a radio, only downsides, they didn't get any extra content particularly.

**Brendan:** They'd have a simulcast of the main station output on digital and radio would flick over and back between the two, they'd be synchronized so you wouldn't have any delays. Then you might have a secondary service maybe with an opt out.

**Andy:** That would be poor quality, maybe background music or talk. In most places, there was no benefit, the only place where there was a bit of a benefit of a move to digital was in San Francisco because there are so many hills, that the FM doesn't work very well and it sounds squelchy.

**That's probably why KNBR, the sports station is on AM and also offers two frequencies, one with an opt out?**

**Andy:** It's another reason why AM in San Francisco is because the FM mobile is very poor, the signal is there but it sounds really distorted. America and Japan are really the only places that still stick to their AM band, in Japan there FM band is smaller than here. Their FM band starts at 73 and goes up to 96 or something like that so it's a little bit smaller than our one so there's less room for stations on it. So, their AM is still significant in terms of commercial use and they've got AM stereo which makes things a little bit better.

There's a lot of bullshit talked about the digital radio transition and it's evangelical for some people and like everything there's pros and cons to both sides. DAB is good in some ways and not as good in others, it's more spectrally efficient and if you do put relays on, which I didn't mention before, we've got two transmitters on, we've got one in Waterford city and the main one, based north near New Ross, on the mountains between Carlow and New Ross and that covers the bigger area, the waterford one fills in the gaps but it's not like FM where you have to have a different frequency, the technical nature of DAB means you can put it on exactly the same frequency and they reinforce each other and are synchronized by GPS, so the waves arrive exactly at the same moment. The system is designed so even if there's a delay of a few micro seconds, the receiver can memorize that one here and add it to that one there to

boost the signal.

So if you turn on one transmitter and drive somewhere and there's a drop out and turn that one off and turn another one on you can find the space where neither transmitter can reach on it's own, they'd both be in a dropout area but because the two can help each other and they are coming from two different directions, suddenly an area becomes good again. It's addition, you can't really do it with FM, if you tried to put them on the same channel, it don't work very well, you would areas where there is intense distortion, people have tried it in America. Generally speaking if you have a relay, you have it on a different frequency in FM. That's one of the pluses with DAB, you can get a very robust network but you need to when it drops out, it's gone. It's all or nothing.

**Re: Radio DNS, when you're looking at it from a producers point of view, does that mean that's going to be part of a producers job to get all that sorted or an extra person in the studio?**

**Brendan:** It's probably a combination of both and on the playout system in both but at the very least when someone is importing the music into the music library they need to make sure that the associated things, maybe album art maybe comments, are all in the playout system as well. For Zenith, the temporary station we run here, most of the music library doesn't have any album art so you can't export out markers that were never imported in the first place, putting it on afterwards can be quite difficult depending on the system.

**Andy:** It's not too bad on Myriad.

**Brendan:** But you have to find it, it doesn't automatically do it.

**Andy:** It's probably someone's job to sit there with a library for a couple of days and go off to Wiki or go off to wherever and get your links and import them in. I crashed the system once or twice when I was in the air trying to do it. I was playing a song and thought I'd put the album artwork in as I was doing it. But there maybe copyright issues with that down the road. Who knows? It would probably be a production person's job to do the library and if you have a talk show it would be a producer if there's extra elements needed like "If you want to find out more come to our website".

**Brendan:** A lot of the content you can put on the slideshow on Radio Viz or something, when I did the one for South East, it was more of a proof of concept rather than a permanent service I was doing at the time. What I did was I integrated it with their Facebook and Twitter feeds.

**I asked someone about that and they said no! I asked why you couldn't do it from an RSS feed.**

**Brendan:** That's what it came from an RSS feed , you can design or do the layout of a slide and integrate it into the section of the slide where you want it to be. That can come from anything, your news headlines, the newsroom, Facebook updates, twitter updates and that can go onto the screen of your radio, it's no problem at all.

### *Appendix: B.3*

*Interview with Robin Crowley, Programme Controller, Gaydar Radio, London.*

*Telephone Interview: March 21 2012*

**Gaydar Radio as such the dating sites were there first and it evolved from that. Is that correct?**

That's right yes, what happened was gaydar.co.uk was created in 1999 and as part of that, a couple of years later, because it was such a phenomenon at the time, it was new and so different and the technology was new and it was all made new in house and it just wasn't created off the shelf, it was a whole new online product and it was an absolute phenomenon, it took off very very quickly. So the owners decided to play for the guys whilst they were online so they created this radio station. At the time, it was just a jukebox, propped up in a bedroom on a table and it was propped up by a travel book and it played music to the guys when they were online and that's how Gaydar radio was born.

**You amalgamated with Purple Radio in 2004, is that how you got on Digital Radio, you took over their multiplexes?**

That's right, we got the London multiplex via Purple, then the Brighton multiplex we acquired later on. So that's how we came on the DAB multiplexes and then we changed the programming so we created more programming. There was one live show in the evening which was Neil Sexton and the rest of the programming was prerecorded and it stayed that way basically up until I joined in 2005.

**How many people are employed now in Gaydar Radio, how many shows are now prerecorded or do you go live with as many programmes as possible?**

We have live programming from seven a.m. In the morning til ten o'clock at night, five days a week, Monday to Friday. The weekend, the majority is prerecorded with a live show on the Saturday night which is Club Nation. But, yeah, I think, off the top of my head, I think we've something like ninety four hours live a week.

And for an independent DAB station, that's really good. But the thing about us is that we're a little bit of an anomaly because seventy five percent of our listeners, still do listen and consume online still. Whilst, that doesn't mean twenty five percent are using DAB that means that they are listening via DAB or they are listening via the app., they're listening online at work or they are listening online at home or whatever.



But seventy five percent of our audience within the UK is online.

**I know for radio stations here, they're saying that it works out at one euro per listener per month, would you prefer to have some of those listeners move to DAB, it would work out more cost effective for you wouldn't it?**

Hmm, I think, the thing about having DAB especially in London and Brighton in those two urban conurbations is, that audience within those two locations are listening via DAB, so for us it is worthwhile for us to keep those multiplexes. Whilst, I think what needs to happen is the cost for DAB needs to be reduced and they have been over the last ten years in the U.K. But it is still an expensive way to broadcast.

**The costs here now have dropped, to get a spot on a regional independent multiplex is now about forty thousand euro which is significantly less than it was and has now shaken a lot of people into considering it but it seems that a lot of the commercial stations, because they are on FM, they are afraid to take that jump to DAB, or afraid to be the first one to fail, if you know what I mean.**

Yeah, this is all about the consumer in the end and what benefits the consumer. How will they be consuming your radio station. Certainly, within the U.K. 4G is going to happen soon and so you know, that is a cheaper way, certainly for niche stations to perhaps, get out there and start broadcasting. The only problem about it is legitimization within the agency houses. So, without being on DAB. If we weren't on DAB we wouldn't be considered legitimate, we'd be considered, 'just' an online radio station.

**That would effect your advertising then?**

That would effect revenue yeah, I think that... because the FM spectrum is filled up, it is, sort of, a closed shop almost between the advertisers and the FM licence holders and that needs to be looked at and needs to be addressed.

**You guys are kind of lucky because you have the sister and brother websites, they all link so the advertising can work across the whole network or the whole brand really?**

Especially for us with the online advertising, yeah absolutely. Also, you know, radio stations certainly since 1999 have been looking at ways to create these social networks and we came from the completely

opposite direction. We came from the direction of we were a social network first and then we created this radio station that grew, very very slowly and organically over a long period of time. Instead, the radio stations are going, 'Oh My God, we have this radio station, we need to create this online community as well.' I think Facebook and Twitter have certainly helped do that for those radio stations and have helped create those communities for them. But we were the first of course.

**What kind of play out system do you use?**

Myriad

**I'm interested in looking at how people react and interact with the information and Programme Associated Data that people can get on their Digital receivers and possibly webcams and that. Is that something you have looked at or is it something you would be into chasing up in the future?**

In what way exactly?

**News headlines, text burst sent through with your Programme Associated Data?**

Yeah, yeah, we do, on DAB, the track, the artist, contact information, we also use it for advertisers as well. Yes, we do utilize that.

**Web cams, are you pro or against them in the studio?**

In the studio, to be honest I have no compunction for or against. The thing about webcams is unless you're streaming a live studio feed all the time, which would be a hell of a thing to do because it would take up a hell of a lot of bandwidth, I don't see the point. You can take photographs and get them up on Facebook and Twitter so quickly now, and onto the website, it's just quicker to do it that way. Personally, I don't see the point. If you look at our website at the moment, we produce a lot of video and we video all our interviews, for me that's enhancing what we do, so I love radio for exactly those same things that you said but whenever I hear things I wonder 'Oh I wonder what that studio looks like'...

**It's the anorak taking over!**

Yeah, it's the geek in me, the anorak taking over but I'm sure they're are listeners out there, who have no

idea what the set up is and so filming stuff and putting that online and having content that is extra to the broadcast, I think, definitely enriches, the user listener experience.

#### ***Appendix: B.4***

##### ***Interview with Donal Quinlan, Manager of Cork FM***

***Telephone Interview: March 28 2012***

**I've found out a lot about the technology to do with DAB and I was in Waterford with Total Broadcast who set up an independent regional multiplex but the cost maybe still out of range for a lot of community and specialist stations. Now the thing that they're saying DAB is going to be good for is choice but what kind of choice, will it be internet like stations broadcasting on DAB ?**

I think what will happen is, the one thing about community stations, the one strength they have is diversity. They have a huge spectrum of programming from eight in the morning til eight at night or whenever they broadcast. If you looking at a schedule, it obviously reflects communities and city community stations would be a little bit different from rural but never the less it's the variety. The thing, that is killing radio, as we know it now is exactly that, the lack of diversity and it's all music. I could see stations going on the digital form and simply emulating community radio stations but on a commercial basis. I don't know if you remember RTÉ Radio One years ago , the diversity in programming that it had was much better than what it has now, all the programmes were sponsored and basically, I could see it going back to that, to be honest with you, when it comes to digital radio.

**When we're looking at Cork FM, how many volunteers do you have?**

Well, active volunteers, I'd say about thirty, total volunteers, we have close to seventy.

**You broadcast at weekends?**

Yeah, we still broadcast on weekends, we're still on a temporary licence so we're not full time yet and we rely on word of mouth to get noticed. You'd be surprised how long you can be broadcasting and no one would know you're there. Basically, it's word of mouth, you know what I'm saying?

**What's your catchment area?**

Well, our catchment area, according to our contract with the BAI, is Cork City and it's environs, they define environs as suburbs. So basically, Cork City centre and its suburbs.

**So it's probably about a ten mile radius?**

Yeah something around that, a ten mile radius.

**When talking about DAB Radio, that involves getting a new studio fitted so you can also output programme related data and so forth on your DAB radio. You have to include all these kind of things in your costs. As a temporary station though, I know you're allowed have sponsorship but you're not allowed have adverts are you?**

No, we're not allowed have advertising, you're right there but another thing I'd make about a community radio station that we cater for, I would suggest that a digital radio, just to receive a digital station, hopefully the price of them will come down but people would be very slow to gravitate to them, community radio would be very slow to go onto digital radio because the expenses involved and the legalities involved and contracts and who's multiplex do you piggy back on? All these questions would need to be answered and I think for community radio, it would be a huge challenge to get onto that form and prosper on that form. It's going to be extremely, extremely difficult. I don't see community radio surviving on digital unless, and there was talks of this, there was a licence fee that would be spread, or some of it would be spread across community radio stations. You said earlier, with digital radio it allows a bigger platform for more stations which basically means more variety and everybody is fighting for the same listener. It's going to become very, very difficult for community radio. I have no doubt that community radio would lose some of its listeners to digital form radio and it's going to be very difficult for community radio to keep a hold on it, in that environment, I think, that's the honest truth.

**One of the things that I have been looking at, is perhaps a two tier system and how that would work. Maybe commercial stations go on DAB, while community stations and non profits stay on FM, do you think something like that would work?**

I can't see a two tier system happening, to be honest with you, it wouldn't be justified with the small amount of stations that would be left on the FM band who would be community stations and then what you would have over the period of years is receivers would be more developed, they would start dropping the FM band.

For instance, years ago in your car radio, you were getting Long Wave, Short Wave, Medium Wave and FM, now you're just getting AM and FM and in another short period of time it will probably be just

reduced to FM, so, as regards a two tier system, I don't think it would work. I would say it's going to be very challenging for community radio when it does go into the digital form. The only thing that probably would happen is that people who are working in the community radio would be taking up employment in some of these stations, you know, so hopefully they could bring the bit of ethos with them and make them more focused on community.

It is without a doubt, to say it's not going to be difficult, especially for the smaller stations and you know it's the smaller stations that are the real important ones in all this, in a small rural area, even indeed in cities, who cater for different communities, like the African community or the LGBT community, Polish community, like. If they get hit and they go the way of the dinosaur, so to speak, well that's a huge loss to those communities.

**You guys wouldn't be included in the JNLRs, so from the feedback you get from your listeners, what kind of age range would be listening to you?**

Well, we seem to be attracting people from an age right across the board, from people in their late twenties, right into their retirement years. We cater for everybody, while we do have a good cross section of the community listening to us, they might only listen for an hour a day. They might only listen to one specific programme, then they'll move on to something else because they mightn't find the other programmes interesting to them but that's part of the service of community radio.

It's not so much about how many listeners can you get listening at one time, it's that the programme that's going out, the community that that's meant for are taking advantage by listening to it. If you have a Polish programme but you don't have any Polish people listening to it, then what's the point of having a Polish programme, so you need to cater for individuals in different parts of the community and give them the service, they'll tune in for an hour but they mightn't listen again until next week, you know?

That's why I'm saying, that would not work, I don't think, on digital radio, if there's a huge cost involved in it because if community radio doesn't get subsidized and it has to stand alone on its own two feet, there's no way that would be able to work.

**For your programming, just for the choice that people are going to have, do you have a set number of things in mind that you want to look at or do you wait until you are approached by members of the community who want to get involved?**

You know the thing about it is, as interested and all as community groups are when they hear about the content of community radio, they will never be the ones that make the first approach. You have to be very proactive with community radio and you have to go to the community. So basically, when we go about starting a new programme, we look for groups within the community that would be marginalized, that wouldn't have much of a voice of their own and they could vary from a youth group in a deprived part of the city to some classical music group or whatever. So, there's a huge spectrum to go from. Basically, we will always start with people who don't have much of a voice for their own cause and that would be all the groups that you have out there in society, who would be very much so, marginalized, or under privileged areas or whatever the case may be. That would be your first starting point. Things like music programmes and things like that would be less down the priority list.

**That makes sense, they can listen to Jay Z anywhere..**

Exactly and that's what I say about commercial radio, it's all music and there's very little diversity, a talk show in the morning... to be honest about it Vanessa, you can listen to a station up in Dublin and drive down, listening to different stations until you get to Cork, outside the voice of the guy on the actual radio station, that's the only difference because everything is the same.

You've the morning talk show, the morning breakfast show and then music for the rest of the day whereas with community radio, you could have a fella sitting down talking about a railway line that ran through his back garden fifty years ago and the next minute you could have someone coming in talking about why there's not enough maintenance of green areas up around Knocknaheaney or why there's wild horses being let run loose, then follow that by someone coming in reading poetry.

That was the diversity I referred to but that could all be catered for on digital because as you know from your research, it can cater for a lot more stations and people are going to need ideas about what works and I think if a guy takes a commercial licence on a digital radio and he looks at community radio for one or two ideas, I think that's what's going to happen community radio. Those ideas that we're working with right now, are just going to go over towards being catered for more or less on digital radio. I think that's what's going to happen.

**It would a shame though, to let community radio die..**

I don't know if people would say it would die, you see the thing about it is, is that when they think its a certain stage and community radio, my opinion, no one else's opinion, when there's a certain amount of , you carry a certain amount of weight, you have a certain amount of lobby group, the discussion they would use is that it's changing, the discussion I would say is that if it's anything other than what it is now, then they're killing it. They could say, 'Well, community radio, it has to change and evolve' and I would agree with that as long as the community changes and evolves. But you can't have a community radio station changing and evolving without the community it's serving changing and evolving. Do you see what I'm saying?

I think that the people who are running community radio, have to kind of, take a time out and take a deep breath and totally understand, they're not there for themselves, they're there supposed to representing the community.

If the community in general said, 'Genie, we listen to your station but there's no way we can afford a digital radio right now, what are we going to do? We're snookered!', if there was a big enough outcry like that in any community, then the radio stations should stay where they are until as such time until the people in the community can move on. The station isn't owned by any one person, it's own by the community, you're going to have to have their total backing and consent.

If you're going to stick within the ethos of community radio and you turn around and say 'We're going digital, to hell with ye', well, who owns the station now? See what I'm saying ? It brings up some big questions, without a doubt.

**If a community station like yourselves, broadcasts within a ten mile radius, you are for a very targeted market, shall we say, you know who you're listeners are, you know who's going to be there but if you go on DAB, even if you go on a regional multiplex, you're opening yourselves up to a bigger audience but even if you were to remain a community, we won't call it community as what you're doing now but some kind of a local station, you're not going to have the same impact because the topics you're covering now, aren't going to get covered because there are too many people who want to get their stuff out there?**

Exactly, you hit the nail on the head and that was the reason that community radio was introduced first was exactly that, to cater for people who are marginalized and you're right in what you say. When it goes digital, it's almost going to be impossible for community radio to operate the way it's operating but, I



would think, we'll have to wait and I hope I'm proven wrong, that people will say, 'Oh, it's not the end of community radio, it's just that community radio is changing'. I disagree with that, if it changes and it can no longer cater for people who are marginalized in the community, then you may as well just pack it up altogether.

So digital radio does, I think, pose an awful lot of questions to the people that run community radio, not alone from the cost of it, it's always something you take into consideration but I think if your heart and your mind is in the right place about anything, you can overcome the costs, you know?

For me, the whole thing would be, sit down if you're going into this whole new platform of broadcasting, that the only thing that changes is the technical side of it, that the programming and the people you cater for are still there and still reachable and nothing on that side changes. Like RTÉ are a public service provider and we're a community provider and the BAI will always remind you of that and that's fair enough too but we've got to remain community radio. Community Radio is only beginning to find its strengths right now and especially in times of austerity, everybody is down in the dumps and looking to each other for some kind of direction, it's good to have community radio that people can turn to and hear that these people are in the same boat as everybody else, you know, it's a connect point.

**I think one thing community radio does, as you're saying there, it also gives them the option of getting involved themselves, which, you can't just go into Cork 96FM and just say I want to volunteer, they'll be asking if you're doing a college course..**

Exactly and that is another valid point, a good point, the doors are open for people to come down and have a chat with us and we kinda give them the one on one on radio and how to work radio and basically go through how to make a programme about something in the city or your neighbourhood and away you go and that is available to them because, like, with the amount of information that is out there between Twitter, text, internet, God knows what, there's very few places that people can get local information, I mean local as in grassroots level, you understand me? Not at national level, it's like the whole idea of just local, local, local and what's happening in your community, I think as you said it's starting to come back, people are beginning to shroud themselves in it because there's nothing else to do. That's why I say, if you have digital radio coming online or on stream, it's going to be a pickle, people are going to have to think about it, you know?

**Have you thought of the Broadcasting Act 2009 and what that means to you or if something**

**happens down the line are you going to think, 'Ok, they're going to help us get over to digital' or does something like that even matter? You just have to do what you do and do it to the best of your ability, like you're working now?**

Can you refresh my mind about what that says?

**They say something about for community stations, to paraphrase it it's when the time comes for digital radio they'll give you a hand basically to get on digital.**

Here they are again, they are more interested in getting the thing on digital without saying what about the people in the community are they ready to receive a digital signal. Are they equipped, is it within their means to go out and buy a digital radio, I mean that seriously. You can't just pick up community radio and we won't go into it now because you know the reasons why community radio was set up, you can't pick that up and say 'Ok we'll move from A to B', it's an impossibility. You can do it technically but you can't do it with the whole ethos of community radio.

This is something with everybody, you'd have to have a majority opinion and communities that would be ready for it to go because the community radio wouldn't be there if there wasn't a community. So if you take away the community radio and the community isn't really moving with it, is it really community radio you have then?

It's not as clear cut as a commercial station, that's grand, where 'They'll have to follow us if they want to listen to us and that's that', end of story, the same with RTÉ and everybody else. It's not the same with community radio one little bit, at all, it's totally different. I think for people to suggest, 'Oh yeah, we'll move community radio', it's not going to be that easy for community radio, there's so much involved in it you know? There's so much involved as in regards having communities involved and people involved and getting everything that needs it. People will say 'Oh there's the expense', OK, let's address that a minute. It's not the the number one issue but it's certainly up there on the list of priorities, just from an expense point of view, you will then have to re-publicize the fact that you're no longer on the dial where you were, that you've moved over to digital. It's not going to be a here today, gone tomorrow kind of a thing, there would be a time when you're broadcasting on both platforms, for let's say a year or whatever the case may be and eventually you'd turn off the FM transmitter.

Well, with community radio, if you take it that a person might only listen in once a week for their specific

programme and not listen anymore, they might not be ready or fully aware 'Oh Jeez, I didn't know it was happening so quick', you still have to then publicize the fact in papers, on stationery and everything you do, which is another huge cost, not just the technical costs. To say forty four thousand from a technical stand point, there would be that again in notifying people of the move, there really is a lot on a community radio scale when you're dealing with it that way.

## ***Appendix: B.5***

### ***Interview with Paul Campbell, Managing Director of Amazing Radio***

***Telephone Interview: March 28 2012***

**From what I know about Amazing Radio, the website AmazingTunes.com, started first.**

Yes, that's correct in 2007.

**And then the radio station evolved from that?**

Yeah, we launched that in 2009, in June 09.

**What were the challenges you found in setting up on D.A.B?**

Enormous and mostly financial. It might be worth giving a bit of background first. My original career was in the BBC, I was a radio and TV producer at the Beeb and then I wandered off to become an independent producer in London, doing mostly telly but a bit of radio as well and a lot of new media and in two thousand and something, two, moved back to the North East of England, where I was from, with an ambition to try and build a scaleable business which could do something that could be global, which really is what this is all about.

So the beginning of it was AmazingTunes in 2007, we actually did a beta website sometime before and the reason we launched the radio station was that it struck me that we needed a differentiator that would make AmazingTunes.com different from and special from some of the direct competitors to it, such as Bandcamp and Soundcloud. And I was puzzling over what would we do that would make it different and hit on the idea of a radio station because musicians love to be on the radio, especially new and emerging musicians, who've never been on the radio before. It's a moment you remember the whole of your life when you first hear a song you've played on, played on the radio. I'm a musician and I remember where I was when I was fourteen when that first happened to me. It's a very, kind of, motivational thing for musicians which would make them choose us rather than one of our competitors.

Secondly, it struck me that the main issue that new musicians face is, particularly in the demise of record labels and the old model, is getting discovered, getting found, how do you cut through ? And the way music discovery has historically taken place is radio, you would listen to a song on Radio One and then

go and buy it. It struck me that in the digital age there was no logical reason why that would completely stop.

And the third reason, I run a business that was doing a lot of digital media, making spades in the goldrush, building websites for people with more money than sense and I watched open mouthed at the amount of money splashed on advertising, thinking as a programme maker, with my BBC background, 'Why don't you just make programmes?', It's cheaper to make a programme than it is to make a thirty second ad and you can quite often get it broadcast for nothing and you get longer touch points and more brand loyalty that you would with a thirty second ad.

So I kind of think of radio in this context, as being a marketing channel for everything we do, promotional device if you like. So the only logical way for us to go was to go on DAB because that was the quickest and easiest way to get to National. As you probably know, there are no available FM National licences in the U.K., we didn't want to do regional only because we thought that was probably proportionately not worth the money and it's also quite hard to get an FM regional licence. So, our real choices were, regional DAB or National DAB and at the point where we tried to fund it, it was a rather helpful low point in the development of DAB in the U.K. Where a whole load of commercial stations had launched and gone bust. There were lots of channels on the multiplex not being used, the BBC wasn't putting much weight behind it's transmitters on DAB. and therefore the operators of the commercial multiplex, Digital One, were very keen to have something which they could point to which would look innovative. Along we came with this model of doing brand new music and no one in the world had ever done before.

Even so, it costs, many hundreds of thousands of pounds to broadcast, I'm not allowed to tell you exactly how much, a very very large amount of money to be on the radio. So the first problem was financial. The second one, that was it actually. When we launched, on the very first day, we started getting emails from people who found it by accident and said 'This is awesome, we love it, keep going'. Immediately, literally on the very first day we got positive reactions to it, even though we didn't have enough money to promote it, it just sort of arrived on the air with five minutes no...literally five days notice actually, from getting the OFCOM licence to broadcast to actually being on air was five days.

**Wow, that's a really fast turnaround.**

Yeah it was and we what we did was a complete cobble together, we'd already put aside loads of tracks we thought were good enough for a national radio station. We made up a loop of all of those tracks and

went out on the street in Newcastle where we're based and brought a portable recorder and a script and said to people on the street, 'Can you read this script please' and the script said 'This is Amazing Radio, new music, new voices with you in control' and stuff like that. So we had this very kind of raw and edgy station imaging which was deliberately very low fi because we wanted to make the point, this is not proper professional radio made by people in glass buildings. It's something from the ground up that's trying to help new talent and therefore we wanted to have a very democratic feel to it from the very beginning.

There's a little bit of a technological challenge, the way we went on air, it kills me, we made up a loop that was three hours long, FTPed it to Croydon where the multiplex is, where an engineer stuck it on a flash card and at midnight on the first of June 2009 stuck it in an mp3 player and pressed play and that's how we got on the air. So we were broadcasting to the nation from a flash card about the size of your thumbnail.

**It goes to show, if you really want to do something, you can do it!**

Yes, absolutely right, exactly right and what it also shows which I think is a very direct lesson for broadcasters everywhere if you take the risk to do something that's different, people will go for it. The reaction we got was 'We found your station by accident', one of the good things about DAB was that people trip across it, because you look at station names rather than frequencies, it's much easier to find something by accident than it is on FM or on AM.

So people found it by accident, they never heard about it because we never told them about it, stopped and listened, heard music they never heard before from musicians they'd never heard of, interspersed with amateurish sounding station imaging, stayed with it, in many cases went to amazingtunes.com and bought the music they were hearing, which is quite a complicated thought, the radio station has one name and the website has a slightly different one and you have to go to it to buy the music but they did. And when they sent the emails saying 'This is awesome', the general prevailing wisdom was 'I'm bored stiff with conventional commercial radio, it's so bland, repetitive, playlists are too narrow, DJs are egotistical arseholes, there's no invention, there are too many adverts, it's just uninteresting. And what we got was a very very strong positive reaction, by contrast because we were doing something differently.

**So basically, where you are now, Amazing Tunes would almost be funding the radio station so your radio station is the marketing for everything else?**

Yes, although, AmazingTunes isn't actually the funding mechanism. We give 100% of download revenues on AmazingTunes away to the artists. We actually make money in a completely different way, which, by the way, we hadn't thought of when the radio station launched but ironically, in the first week we had an email from a listener which triggered the thought.

The way we make money is we have a parallel B2B activity which we call 'Amazing Instore', which takes advantage of the fact that the overwhelming majority of music in our database is from musicians who are not registered with the Performing Rights Society or any other copyright collection agency. So what we do is, we have sales staff, who talk to people in shops, large retail chains and we say 'Are you currently paying for a PRS licence to play music in your shops?', 'Yes', 'Would you like to have new and original music from new and emerging artists for less money than it costs you to pay PRS?' So we then licence that music to the shops, we then pay the musicians for playing their music in the shops and the difference pays for the running costs of the entire business.

**That's impressive.**

Thank you, we only broke even in January for the first time by the way. The logic is completely sustainable from it and it allows us not to have adverts on the radio, which as an ex BBC person, makes me very happy.

**That's the first thing I noticed, there's no two songs, three adverts and it's a pleasure and it makes for a much more relaxed listening experience, I think.**

I agree, yeah, I completely agree and it just makes me laugh that we have a commercial radio station with no commercials.

**As someone who is coming from multimedia in college, I think you've embraced these beautifully and now you've incorporated a U.S. arm and incorporated a rewind service and a time delay service as well. When did you launch that?**

The time delay was launched, in I think it was launched in January and the rewind was launched last month (February 2012). What's happening is that the people who are uploading tunes are from all over the world, the first guy who uploaded a track was in Los Angeles and we're big in Australia and Germany and

France and and and. The listeners to Amazing Radio and using the online apps are all over the world as well. So, we have global penetration, obviously we're only on the air in the U.K. but the first thought is well, we should make it convenient to listen in America because it's such a huge market and if we could find a way to break in America, then we become a seriously important and valuable business.

Stage 1 was timeshift the output so you can hear the breakfast show at breakfast time in California and then the same software which our guys wrote which basically takes the U.K. Output and sticks it in a great big piece of RAM really, and then we can dip in every five, six, seven or eight hours to fish it out again and that gives us the four different timezones. That same software allows you to go 'Oh I missed that song, I'd like to hear it again', so once we'd built the timeshift for the U.S. timezones we could do an instant rewind which I think is a global first. I don't think any other radio station has ever been able to do that before, mainly for licencing reasons actually, mainly because of their terms with the record labels, they would have to pay more money each time someone rewound and replayed but because of our licencing we don't.

**In Ireland, if you're broadcasting online you have to get a PPI licence and you have to get an IMRO licence, they are the people who collect copyright music. What do you have to get in the U.K.?**

You don't need any of those really if you're not playing commercial music, so when we started we had no deals in place with PRS or PPL. What you do need is an OFCOM licence, which is a licence to transmit basically and that's what we got.

**You don't actually need one of those from the BAI to broadcast here online.**

Oh sorry online, no you don't need anything in the U.K. To broadcast online, you can just do it, you can do anything you want. If you're playing PRS. Music you need an agreement with PRS. And when we first started we didn't But PRS then changed their rules and became slightly less mad so we then did a deal with them. They're still pretty mad.

**For the U.K. then, what percentage of people listen online and what percentage listen on the DAB receiver?**

We don't know to be honest because I refuse to pay for RAJAR Figures, which is U.K. Radio Audience Research because they charge fifty grand a year and it's woefully inaccurate. There's a commercial



station, called NME radio, which is based on the magazine, they were initially broadcasting on DAB in London only and they had RAJAR figures for that because they took adverts and you need RAJAR for adverts, then they went national on DAB and their RAJAR figures stayed exactly the same, I mean exactly the same.

The notion that they had no increase in audience, even though they went national is clearly a nonsense even just goes to show how ludicrous and old fashioned the whole RAJAR system is. So we won't pay for that and in any case we don't need it, the only rationale for having it would be if we had adverts, and we won't, so we don't need it.

We obviously know what our online listening is because Google Analytics tells us that. If you use the same proportion of online listening compared to over the air listening, for us and applies to RAJAR stations we have probably six hundred thousand reach, in the U.K. on DAB.

**I'm loving your setup and it has to be the way forward, the commercial end of things just seem to have endless costs, they're taking money from you any way they can and it's hard as a business or any kind of a start up to make any kind of a foot hold at all if they're always emptying your pockets before there's anything in them.**

Yeah, yeah that's true. This has been a real struggle to get going to be perfectly honest, it's been funded by private investors, by angels, we have about forty private individuals who have give us anything between five thousand pounds and a million quid each, in order to get going and that's funded this.

I think that if we have a V.C. Investor, it probably wouldn't have worked because they would have demanded a much shorter return, they would have wanted two or three years to an exit. It's been five years and we've only just turned a profit but of course, the reason that these guys do it is because they understand that this will either fall flat on its face or become a billion dollar business and they're prepared to take the punt.

**How many people are employed by you guys now?**

Full time staff about twenty eight. There are roughly fourteen part time, mainly presenters, it's quite a big operation. Is it bigger than you thought?

It's a lot bigger than a lot of stations, bare in mind that they are not just working in the radio station, so we have something like ten people now working on the instore activity, we have four or five web developers. We're very ambitious.

**When you look at a station like Q music in Belgium who have flash studios and TV graphics and actually broadcast on a TV channel, that's one way of how the future may go but you guys, have a completely different model and this could take off even more for you when 4G is introduced into countries, like Ireland, where it's not available. This area where you are, very well could explode.**

I agree but I do think it's important to have some 'proper radio' in the mix as well, it's important from the perspective of the musicians that their Granny can hear it in the kitchen on the radio, kind of thing. But also it makes it special. It's too easy just to have an online radio station, it's not the same thing. There's something about the magic of it coming through the ether that's important to the sense of specialness for it. That's why in the States, obviously, we have the online stream and everything, we plan to launch some radio stations of our own that actually are on the radio, in the States as well, which will be kind of opt outs of the U.K. output initially. So we'll start with a service which is the current AmazingRadio and then the Boston, New York or L.A. radio stations will start off by opting out of that and then they'll progressively build up to more and more twenty four seven stations of their own.

**Wow, that's why it's called Amazing Radio?**

Exactly!

## ***Appendix: B.6***

### ***Interview with Greg Parke, founder of BuzzRadio.fm***

***Skype Interview March 28 2012***

Buzz is U.K. based: All monetary values mentioned are pounds sterling.

#### **How much does your streaming cost?**

For Buzz to stream around the world as it does and to all smartphones, it's only costing me about twenty quid a month. We're twenty four hours a day, seven days a week and our expenses only goes up if there are too many listeners on one server so another server has to kick in to accommodate the traffic, that's obviously when our bandwidth becomes much bigger, we have to pay more. The cost of streaming is coming down the whole time.

**I was talking to someone about streaming and they reckoned that for someone like TodayFM it was costing them one euro per listener per month.**

It depends on what company you're with, some companies do that, the company we're with, they're based in Scotland and their servers are in London. They have about two hundred and fifty stations going through their servers I think their profit is in volume of customers as opposed charging any other way. Typically, Buzz would have about one hundred and sixty thousand listeners every week. And looking at the geo-stats, I published it there on some of the Buzz social media pages including just to let people see that we reach, seventy, maybe at most eighty but usually seventy to seventy five countries a month.

**When did you start Buzz? Energy Radio was originally going to be called Buzz wasn't it?** (Greg owned Energy Radio, a pirate radio station based in Navan, Co.Meath which broadcast in the 1990's)

Energy was piloted as Buzz and it was going to be called Buzz, right up to about the last fortnight before Energy actually launched and it was a last minute decision by me because I heard the jingle package for Energy at that time and I liked it a bit more than Buzz because there was more cuts and also it was a much more dynamic name and so forth. It fitted into the format we had in mind but it's always been there.

Buzz was launched in March 2009, I started Buzz as a hobby internet station, the only way you could

listen to it at the time was via the website. After September the following year, 2010, I heard about these new WiFi radios, a bit like the old Shortwave radios except the receive internet stations only via your wireless router. So I was like 'How do we get onto these things?' So, we looked into that, it was really a case of registering the station with all the manufacturers, Roberts, Pure, different people like that. I noticed over the registration process, you had to go to some manufacturers directly and say, 'Look, this is who we are, this is what we do and here's a link to our URL and so on', there's some websites like TuneIn radio and WunderRadio, website like that, who specialize only in listing internet stations only, globally. Some manufacturers like Roberts, take their data from that and install it into their radios. After doing that I noticed that the listenership went up, seriously, like two/three hundred percent. The next stage I noticed was people were writing phone apps but radio phone apps but using these websites. It was a case of, Ok, if the station came be heard on a smart phone are we actually on every single app that's out there. A few of us had to work on it, how many apps are out there, 'Do they get their data from TuneIn radio, no they don't, where do they get their data from. Oh, there's a website we don't know anything about so we'll get onto that website.' Then some of them got their own data from their own research, that's still ongoing. After getting the radio station registered on all free global apps which had the biggest effect at that point because we had more listeners typically, we reached a point in, I think, July of last year, we were actually getting more listeners in a day than from any given month of the previous year.

### **It made that much of an impact?**

Huge! And after registering the station on all these apps for iPhones and Blackberrys and whatever the next thing was to look at it and see if we can go a stage further than most stations are prepared to do. Can we look at free apps, internally, within each country. So say, for example, Germany, 'What German apps are there? Are they free? Can we get the radio station onto German smartphone apps?' Obviously you're doing that country by country and it's an enormous task, it's still ongoing but it's really about saturation of the station, about trying to get it on as many smartphones across the world as possible.

### **That's just hard work, that's sitting down and doing it!**

Yeah, it's a lot of hard work, a lot of hours but then it pays off because it's reflected now in our listenership. Typically now we would have more listeners now than any city station or at any one second, it's reflected in the figures. We're in a position now where we can market multinational companies at least, maybe in a number of countries, we have the listenership and the beauty about a WiFi internet radio station is that our internet stats are fact because a server doesn't lie.

Anybody who listens to Buzz, if you listen a computer, if you use a WiFi or internet radio or even a smartphone, that still has to go through the server so it registers. So, our figures are fact, they cannot be doctored one way or the other and again too the beauty of this technology is by using things like geostats, we can via peoples IP addresses, we can tell exactly where people are listening, how long they are listening for and so on. The technology now is getting scary, it's getting to the point where we could isolate one listener and their stats, using their IP address, look that up with the necessary software and point out, even on Google street view, 'there that house there, or someone in that apartment was listening to Buzz today and they listened for three hours and twenty two minutes'.

It's scary the way the technology has gone. I don't think it's a case of WiFi versus DAB because they are on two totally different platforms but DAB doesn't make a lot of sense to me. In one way it does but in another way it doesn't. First off all, it's quite expensive to set up and it's quite expensive to run, I don't know about the South of Ireland but in Northern Ireland, across the whole province it costs you about fifty thousand pounds a year, that's just to be on the multiplex system. The other thing, I don't like about DAB is that you're still going to the extent of putting up new masts, new transmitters, blah blah. BuzzFM doesn't have to worry about transmitters, we don't need a transmitter, all we need is the server in London. Because the mobile phone network is in already place, there's enough masts up. We let the mobile phone networks worry about their own transmitters and usually they have back up, they have to because they obviously have to maintain phone coverage. The other thing about DAB is that governments in the west make lots and lots of money from DAB, you can't police the internet therefore you can't police WiFi radio. You can't decide who gets a licence or who doesn't get a licence for WiFi radio, you can't but you can with DAB, so there's money to be made in it and once there's money to be made in it, governments are interested. There not interested in this technology even though it is a lot more advanced, in fact, there's some M.P.s in the U.K. trying to stop 4G coming in across the U.K. The mobile phone networks want 4G rolled across the whole of the U.K. by 2015/2016 and the beauty of course of 4G is that it basically puts the speed of broadband onto a handset. Therefore, there will never be any issues of buffering of internet broadcasts so that even opens up avenues of internet television.

**One of the things that needs to be looked at is 02 and Vodafone here have brought down the amount of data in their packages, is that because more people are listening to radio on their phone? If they bring it down, that means if you go over, they can charge you more. But if you then get 4G on your handset that means you have proper internet on your phone and it's a different ballgame?**

That's right because it's the speed and something Steve Jobs said before he died really he said what we have achieved is speed, we don't need things to move faster because if had an even faster connection online, we actually wouldn't really notice any difference. His prediction for the future was that technology will be designed more around us, our lifestyles our living. And because 4G is so fast anyway, minimum 4G it's as fast as broadband is at home at the moment so it's really, we have this speed, what can we do with it and there can be a lot done with it. It's not just about radio to a handset, it's about television, it's about even making Skype calls, in fact one of the things that is concerning record companies at the moment is that people are going to concerts and people are streaming concerts live from their phones or even recording a particular artist and uploading it to Facebook or somewhere. So when 4G comes in that's going to open up a whole can of worms on that.

The reason why I think WiFi radio has a longer life than DAB firstly it's not DAB versus WiFi, it's a different platform. Governments are trying to push DAB because they can make money out of it and in the U.K. the BBC are pushing because, well they're on it, all these guys are up against multibillion pound organizations such as 02 and all of these phone networks and they're the guys that have the money, they're the guys that have the clout to promote it and they're the guys too, the reason why phone companies want it, is obviously it's more selling points for their phones but it's convenience. People's lifestyles, it's having everything on one device that doesn't just text anymore or is confined to making or receiving calls. You can go online and do as much as you can on any laptop or computer today, so why have a second device, it doesn't make any sense. That's why a lot of smartphones have actually a miniature FM transmitter built inside them for the convenience. They've already addressed the fact, these manufacturers, that not every car radio has WiFi, or bluetooth because what you can do with that is find the radio station you want to listen to and send that to your car radio. But not every car radio, like mine, has that. So, you can select whatever radio station you want to listen to on WiFi, switch on the phone's little tiny transmitter, tune your car radio to that and pop your phone back into your pocket.

You're literally driving round, listening to stations from anywhere in the world, a minimum choice of about maybe seven thousand radio stations. It depends on the app, the WunderRadio offers fifty thousand stations so choice.. it's the same with a home radio, WiFi radio. The reason I like those is, what people need to do is ask themselves 'Well actually what's the strongest signal in your home?'. It's not your mobile phone because it probably coming from a mast a few miles away or something like that, it's actually your wireless router, it's in your home, it's a transmitter, beaming the internet around your home. So, it makes sense that if you have a WiFi radio or you can use a smart phone, I mean, anyone who can't afford a WiFi Radio, there's all sorts of things you can do with your smartphone..

You can plug in your speakers to your smartphone or something but the interesting thing is up here when it comes to DAB is that a DAB radio will cost you thirty or forty quid for one but for an extra twenty or thirty quid, you shop around and you'll get a WiFi radio. I know, because I have a DAB radio in my kitchen and there's twenty five stations on it but for an extra thirty/forty quid, I could have had a WiFi radio with a minimum of seven thousand stations on it. So there's no argument there even in terms of choice.

WiFi radios are more dynamic, most of them will dock iPods, most of them will take a flash drive or memory stick, where you might have some music on that. Most people have music stored on their computer at home so what you can do is open up what's called 'Media Sharing' on your computer. Your WiFi radio, downstairs, will hone in on your computer and will actually play music from your computer upstairs, or elsewhere around the home, so you're not having to run wires around the house and you can make up playlists and select folders and so on. They're also beautiful for podcasts because if you've missed a show or you've heard the first thirty minutes of a show but you missed the last thirty minutes, using the dial, you can actually select thirty minutes into the broadcast and start playing from there. Literally by the second of what you want to listen to point to point. They are much better value for money plus they look nice, they look better, obviously it depends on how much anybody is prepared to spend, usually the display they go beyond RDS, they display the station logos and so on, full colour screens.

To me it makes more sense, why would people want to put up more masts and antennas and worry about DAB and the interesting thing about DAB is the public have been conned into thinking that this is a far better quality and you'll not have any reception problems and so on. In fact DAB yes, don't exist between 87.5 and 108 Megahertz, it's on the same spectrum but just further up the band. It's still on FM, no matter what people try to tell you, that's the crux of it. The way those radios work, it's a little bit like the old CB radios from years ago, you actually had a feature on your CB radio called 'squellch' and what that did was, if there was any background noise or eleven meter band receivers would be susceptible to a lot of static, you could actually turn this and instead of hearing, (makes static noise), turn it slowly until there's no background noise, until you're hearing exactly what you want to hear. It's the same thing when a DAB signal falls below a certain level where it's liable to become hissy or crackly, the receivers won't receive it. The thing with DAB is you will either hear the station or you won't.

**In the mean time people are better off with WiFi?**

Well, certainly when 4G comes in because my carrier doesn't have that so, I bought from Maplin, a miniature FM receiver that plugs into your cigarette lighter and the only other cable then plugs into the speaker jack of your smartphone and you decide what frequency you want this this to broadcast on and tune your radio in, it's as good if not better than any FM radio station. The other reason I bought it is because even though there is a miniature FM transmitter on my phone is these things plug into anything, maybe a MP3 player, even some SatNav's have have an external jack, so if you feel you can't hear the directions, you'll certainly hear it a lot louder through your car radio. Everything's interchangeable. I know people like Dusty Rhodes would defend DAB but that's because he's on it.

### **DAB hasn't been marketed well here either.**

Yeah, well that's true. This whole idea of switching of FM completely and force people over to DAB, it doesn't work that way, you can't force people. It's like that old one, you can bring a horse to a well, drown it if you like, but you still can't make it drink. That transition hasn't been marketed well, it hasn't been done right. At the end of the end too, you can't beat the will of the people, I guess it's the way everything is gone these days. People want convenience they don't want to be in a position whereby they 'Oh I have to spend money here to convert my car radio over to DAB' or 'I have to go buy a DAB radio'. Why should you do that when you already have all of your local stations on your TuneIn radio app but even more.. Here's a classic case in Northern Ireland, the Q Radio Network owned by the Northern Media Group, they have six stations, now one of those stations, Q102 is on DAB across Northern Ireland, for obvious reasons like I said, costs fifty grand a year to have a station on across Northern Ireland but if you have a WiFi radio or your smartphone, you'll actually hear those other five stations. You actually do hear more local radio, it's inexpensive to set up and inexpensive to run and since December and it's March now, up here where I am three new stations have started online, StrabaneRadio.com, there's a dance music station that started here outside the city (Derry) online and there's another one who's testing, there's another one too, I saw their page on Facebook, NorthernIrelandRadio.com is it, I can't remember what it is but their strap line is 'Northern Ireland's internet and WiFi station'. Our strap line is 'Northern Ireland's Number One Internet and WiFi station'. You can obviously see where they got that from. But they obviously have seen the success that Buzz has had up to now anyway and all our presenters are professional ex-Downtown ex-Cool FM, ex whatever, in fact as Northern Media Group have been letting people go, we've actually been hiring them, the complete opposite. And I suppose people just see this as growing and people are thinking well 'Parke might actually bloody well do this, he might just pull this thing off.' Well I already have, our listenership says it all. Because there is a lot of free WiFi zones opening up now as well, especially in Derry now, they're really pushing that now for 2013..



## **The City of Culture?**

Yeah, they want to have free WiFi across the city centre, well, they actually have free WiFi across most parts of it so we have listeners, like people in shops. I know one shop that has us on all the time and because the webstream is better or every bit as good as FM or DAB, the only restriction is the receiver and let's face it most modern smartphones have pretty good processors and we're free in these free WiFi zones.

## **How much of listenership comes from phones?**

Oh let's see, it's rising all the time, it passed WiFi radios, they were our number one but I'd say a good sixty to seventy five percent even would be mobile phones at the moment. The interesting thing is if anyone goes to buy a phone, even the cheapest ones these days, still have WiFi access.

## **Where do you see the station go from here, how can it grow from here?**

When Buzz started, when this technology wasn't particularly new in 2009, it's been there for a very long time. It was actually all about availability and especially when 4G rolls out. It's difficult to tell. I can see it staying put where it is, it keeps going and we'll grow in listenership. I would like to see the station develop further by having other stations or other branches, sister stations to Buzz. Buzz specializes in playing music from the last twelve years, from 2000-2012 but I would like to have a station that maybe specializes only in eighties music or only in rock music or something, in fact I do think rock and particularly soft rock is not catered for enough. That's where I see it going. I got a pretty big shock there last year from discovering a radio station, I think it might have been on TuneIn Radio and this radio station had something like fifty different radio stations under the same brand. I can't remember the name of it so for examples sake let's call it ABC. There was ABC1, ABC2, ABC3 but instead of numbering it that way what they did was number it per year, so there was an ABC1973, the year I was born. What they did was put virtual radio stations into the server and each station played music only from year, so whatever year you were born you could listen to that year and nothing else. That surprised me as these were virtual stations, they're not real, there's no body there, it's one server carrying any number of stations. That too, is interesting thought to see how technology has developed that way. That's something I would like to look into more. It's quite cheap to set up, obviously, as your not you're not setting up equipment and studios and that sort of thing. That's what I would like to see Buzz doing, where it is at the

moment, leave it as it is but any other stations after Buzz, sister stations be virtual stations that carries anything from between two hundred to twelve hundred songs.

**How many people do you have working for you now?**

Everybody at Buzz works voluntarily, so (counting) at the moment we've the guts of twenty people here.

One of the stations in the U.K. pointed out to me that for advertising people always wanted them to have an FM licence and some sort of a record of listenership. Because you're online, you can show them all your stats. Has anybody looked for that kind of thing?

No and the reason why is because we always present that to them and I suppose when you include that with your package they have no reason to ask because it's there and they can mull over it. I suppose it would be interesting to see if we took it out how many would ask.

## ***Appendix: B.7***

***Interview with Garvan Rigby, Programme Director, Spirit Radio***

***Spirit Radio, Hume House, Dublin 4, April 3 2012***

**Where do you stand on DAB and a digital switchover or has it even come up on your radar yet?**

Well to be honest with you, we haven't really thought long term on this at the moment because our main focus now is to roll out AM, which we have to do under the terms of our licence and when that happens we'll also be rolling out another fifteen FMs into towns across Ireland so we're talking about Athlone, Dundalk, Bray, those kinda places. So that's phase two, before we look at phase three, which is digital, we have to roll out the next two phases first.

Sorry, digital would be phase four. Phase one was our five FMs in the five cities, phase two is the AM. Phase three can't happen until we get the AM on under our licence. Once AM goes on air that will go up from the top half of the country, that will go up from about Monaghan which will cover most of the top half of the island of Ireland, or the mid to northern part of the island anyway and on a good day you'll hear it in the very south of Kerry. Once that happens, then we roll out phase three, which would be the fifteen FMs and phase four would be digital.

The reason at the moment is that Spirit Radio is a charity, it's a non for profit radio station so we don't have big funds behind us like some specialist groups that have and therefore our priorities are F.M. On analogue radio because that's where the majority of people still listen to radio on. We have to roll out AM anyway as part of our licence, even though I know AM maybe going back to old technology compared to DAB, which would be futuristic technology but we have to do that as terms of our licence.

**That is part of your licence?**

Yes, part of our licence is that we have to have AM on air to cover most of the country, so that is priority and that has to be set up under our licence before the middle of this year, so June or July that will happen. Then, we want to get more FMs on in towns, the majority of people still listen on FM radio, so that's the reason we're going to go onto FM in those towns. When, that's done and if there's still enough funding to come through the pot, shall we say, we would then look at digital, satellite, DAB, we're on WiFi radios, we're on internet radios at the internet radio platforms like TuneIn, WunderRadio, iTunes, we're on Nokia phones, we're on receiver radios, internet radios as well.

Of those type of digital radios, internet radio themselves as opposed to DAB radio itself, so the plan for the DAB, it would probably be twelve months before we look at it. There are DAB trials at the moment, I'm aware of that, it's a joint venture between Dusty Rhodes and Joe, em, Joe King I think, they are rolling out the DAB trials. I know some stations are planning on going on that, we're not planning on going at the moment. Because, at the moment, our funding is so tight being a charity, we don't have the fundraising at the moment. We're a new station on air, trying to find its feet, every penny counts.

At the moment, for us, DAB is not essential. What is essential for us, is that we are on AM because we have to be for our licence and essential for us to grow our listenership in the towns is to be on FM.

**Your licence then is not a quasi city licence, it's a national licence?**

We've a national AM licence with FM fillers so the FM's would be the main urban areas, fifteen towns and five cities. Our licence will also be to supply AM because that's the frequency we were given is to be on AM to cover the whole country.

**If your set up as a charity, that means you don't have to be included in the JNLRs and things like that as well?**

We don't have to be in the JNLR, we can go in the JNLR if we want to.

**Do you have to pay to be included in the JNLR?**

JNLR could be twenty thousand or around that. Spirit made the decision, that it wasn't financially viable at the moment, with the funding the station has, to pay to be in the JNLRs. So therefore, we're out of the JNLR, most community stations in the country aren't in the JNLR. Even though we are a station with a commercial licence, we're not a commercial station, therefore we can choose to be in the JNLR if we want but at the moment, we're opting out.

**Do you know what kind of listenership you get through internet access at the moment?**

Well, the only research we've done, we've commissioned RedC to do a survey, which has been well publicized in places. When RedC did the survey we asked them to add a question on to ask them 'Did you

listen to Spirit Radio in the last seven days?' and the research came back from RedC which were very, they have a very comprehensive survey. They do one thousand people in Dublin alone and three thousand in the country and they run maybe twenty, thirty, forty questions to a group of maybe a thousand people. 'What dishwasher soap did you use?', 'What car do you drive?', 'Did you listen to Spirit Radio?', 'Did you watch Joe Duffy's TV show?'. That was very comprehensive, so we got good results back from that and also a few of the marketing agencies use a below the line research company called Ask G. They suggested we do that as well. So, we used their research as well which was, 'Was listened to yesterday' and the listened to yesterday came back very healthy as well, six or seven percent in the various cities. Seven percent Dublin, six percent Cork, so we got a very healthy reaction from that. That's all the listenership we've done so far, research wise. We're not in a position at the moment to do the JNLR so we can't compare to JNLR so it would be unfair of us to compare ourselves to other stations or other stations to compare our data because it's different data.

**For advertisements, I was speaking to a couple of stations in the UK, where they are not partaking in the RAJAR, so they use their internet stats to show to advertisers, do you have to do the same kind of thing or what way does that work for you?**

At the moment, any bit of data we can get, from Facebook likes to interactivity to how many emails you get, one of the data we use as well is from our funding, our donations. On a pledge drive we normally raise either fifty thousand or a hundred thousand euro, so basically the golden rule is about eighty to ninety cent of a listener, would indicate your listenership. So if you raise one hundred thousand euro, you probably have one hundred and ten, one hundred and twenty thousand listeners. So similarly when I was involved with another station, Christmas FM, when we did fund raising as well, that was our barometer, how much money we raised was an indicator of how many listeners you'd have roughly, you know? I think it's about eighty cent, on average a listener will donate, on average per listener. That's one way of measuring it. We've used web site statistics and that and online listenership figures as well but again as we're focused on FM in the cities, we're not an internet station anymore, we were when we started off, we're not focused on internet data.

**What kind of a play out system do you use?**

We use Myriad for play out and we use M1 for scheduling. All our music and all our programmes are scheduled on software called M1, it's American and Myriad which a lot of stations use, we use for play out here.

**Do you use 'Programme Associated Data' for anything going online?**

We use, for song display for example, we used OCP, which is the song display service of PSquared which runs Myriad. So the OCP outputs song names or last songs played to our website and to our iPhone app and that kind of thing.

**So basically where you are now, you want to fulfill your licence before you do anything else. From your point where do you think it's going to go?**

Well, it's hard to know some people might say that DAB might not happen because technology will progress ahead. I see that almost everyone I know, has internet on their phones now, they've internet in their car, they've internet in their kitchen. A lot of people, will listen to and do listen to radio on internet radios or on iPhones or whatever it is, so DAB as a service or as a technology maybe bypassed in the future.

If streaming rates continue to drop, if data plans are all inclusive packages so they can stream radio all day long if they want, it doesn't cost them money, which has been a problem up to now because if people streamed internet radio, it would cost them money. It didn't cost them money to listen to DAB or listen to FM. So as the costs come down, or the costs become null and void, more and more people will listen to radio through WiFi, through internet radio through their apps and bypass DAB as a technology especially when internet radios appear in cars, the need for DAB with less channels and less options maybe by passed.

**Your licence is a ten year licence?**

It's a ten year licence but we've a one and a half year licence in the current stream of things, the eight and a half year licence kicks in, once AM is on air.

**If they're planning an analogue switch off, have they included anything like that in your licence?**

No, not at the moment no. The analogue switch off of TV is happening this year as we know, the analogue switch off of radio hasn't really been established as far as I know and for at least the next ten years. So, at the moment even though AM is being switched off around the continent and in fact around

the world, it's kind of ironic that AM radio is still being rolled out in Ireland, you know? But for the foreseeable future that's going to be the situation here in the country, AM radio will still be on, obviously as the licence is for ten years, so I presume we'll cross that bridge when we come to it.

**A few people have said that perhaps commercial stations would go on DAB, whereas community stations or specialist stations, like yourselves would stay on FM. That would lead to a two tier radio nation, would that work?**

If you look at the U.K. There, a lot of specialist stations have gone on DAB, especially someone like ourselves, or UCB in the UK or Premier Radio or a lot of Asian stations, you know, because they find that's where they can get to, or they have used AM. AM seems to have become very much a specialist band in the U.K. and over here, I suppose, AM radio has been dead for twenty years effectively, well dead for commercial radio, since the pirate days and has been for RTÉ, for what the last eight, nine years. So, it's hard to know what way things are going to go but if DAB becomes very expensive, closed, commercial, it would be very hard for specialist stations, for community stations, hospital stations, temporary stations to get on the DAB network, but it's early days yet.

**And considering DAB could cost forty grand to get on a regional multiplex, to cover the country how many pledge drives would you need to be doing?**

It could be an awful lot and that's what the focus is not on DAB for our station, at the moment. Our focus is to roll out the FM, get AM. on air and fulfill the licence.

## *Appendix: B.8*

*Interview with Dave Timpson, Platforms Coordinator, RTÉ Radio,  
Radio Centre, RTÉ, Dublin, April 5 2012*

**One of the things I wanted to ask you about was 2XM, Dan (Hegarty) is going live now every day so does that mean you're pushing it more and also 2FM is going to be covering the Olympics, is that the start of a change in format?**

I don't know and I can't comment for 2FM, I don't know what the strategy is but with 2XM from an editorial point of view it's getting pushed with Dan is, you know, doing his show from 11-1 and its repeated on 2FM so we're starting to see a lot more cross pollination between 2FM and 2XM, which is good and we're welcoming that because it is essentially what BBC did that years ago with, you know, 1Extra and Radio 1 and you're starting to see brands crossing over on both networks irrespective of the platform that they're on. 2XM doesn't have the reach 2FM has does because it doesn't have the national FM network behind it. It's on every other platform except for FM really.

**With Pulse, Pulse was on 2FM on a Saturday night and is no longer on, why was that decision made?**

That decision was made by editorial in 2FM.

**How much of the DAB rollout is down to you or is it down to the RTÉ Networks people?**

Well, currently the DAB network, we're tending to use words like DTR, instead of DAB that means Digital Terrestrial Radio as opposed to zoning in on a particular format because DAB is one format of DTR because there's DAB+ which is being rolled out in the rest of Europe, apart from the U.K. and so we're currently at fifty four percent population coverage, not geographical coverage of DAB and what we're saying is we're going no further in the DAB rollout until the commercials engage with us.

The difference between RTÉ Networks is they're a wholly owned subsidiary of RTÉ over in that part of the building, we're here in radio, we're a different IBD. There's five IBDs in RTÉ, there's telly, radio, publishing, networks, and that's four and I'm missing one. Essentially we would create strategy in radio and we would, depending on the outcome of strategy or the outcome of operational strategy we would either put in a request to RTÉ Networks to facilitate, or we meet them, we see what their forward plans



are and we decide to go through with any additional... we move forward together as RTÉ Radio and Networks on any additional infrastructure to facilitate Digital Terrestrial Radio. What I mean by that is we look at developments in Europe, we look at developments in the U.K., we're in the situation in Ireland where we share a border with the U.K., a lot of people ask us 'Why didn't you roll out DAB+?'. We didn't want to be a situation where someone bought a receiver in Newry and brought that over the border to Ireland and it wouldn't work in Drogheda and vice versa.

They have a huge market, there's twelve and a half million receivers have been sold in the U.K., so if we were to go for, at the time, four years ago, five years ago when DAB, DAB+ questions were there the amount of DAB receivers and penetration was obviously greater than DAB+ receivers, there was seventy, eighty odd DAB receivers on the market and there was maybe four or five, but now it's obviously much different, everything is backwards compatible, if you buy one, it will work on the other. If we do go ahead, if we go ahead with DAB+, there will never be a situation where we disenfranchise DAB listeners. You know there's a certain figure of receivers that have been sold in this country and they have to be accommodated for a certain length of time. So, what you'll probably see is a period of dual illumination of DAB and DAB+ as we go forward.

**So basically you're waiting for the commercial guys to make up their minds?**

Well, we're not, some of the commercials have made up their minds, I obviously can't speak for them or I can't speak for the IBI, the problem at this stage is regulatory. The BAI have not put the correct regulatory framework in place for the rollout of DAB or DAB+ in this country.

**The BAI are still very vague, I've asked them questions and they've said 'You need to get to RTÉ or you need to get to ComReg' and I was onto ComReg and they were like 'No, you need the BAI.'**

ComReg simply issue the licence, look after the network. The problem is regulatory, that's with the BAI, one hundred percent. We would like to see a situation like what happened in the U.K., OFCOM is the U.K. equivalent of the BAI. They try to incentivize commercial radio stations where instead of trying for a new FM licence, incentivize them to apply for a DAB licence first and then they'll automatically if they're successful in getting a DAB licence, get a ten year renewal of their FM licence. That's how they are incentivizing it and it's a really really proactive way to go about it. We'd like to see a situation where a similar thing happens in this country. Now, over the course of the next two years, there's a lot of commercial licence renewals so we'd like to see something in place by the time that process begins.

**There's another lot of DAB trials happening in June, because you're already on DAB, or DTR, do you get informed about what's happening?**

In terms of what's happening, Dusty or Digital Radio Limited or something they're called. They've applied for what is called a Wireless Trial Licence and that means they can put up a digital radio sound broadcasting multiplex, as it's laid out, and they can put any service they want on that for a set period of time. That's strictly a trial licence so what Digital Radio have done is they have paired with, Dusty's company being a content provider have paired with a network operator, a third party network operator. There's three major network providers who could facilitate that one of them being RTÉ networks..

**Then there's BTS, Total Broadcast..**

Yeah, then there's a few other little small guys who would be able to put up local masts. So, Dusty, they did their press release in the Sunday Business Post about four weeks ago to say they were doing this in June, I guess it will be a range of Dusty's services on this particular multiplex. It's not clear, they haven't made it clear of what sites they are going to come from. You know they spoke about a certain percentage population coverage but we don't know what sites they are coming from. We don't know if it's going to be a SFN or MFN which is Single Frequency Network and Multi Frequency Network because do you know about single frequency blocks?

In a single frequency network for FM, it's subtractive, say you have, shall we say, two 2FMs on 90.7, one coming from Mullaghanish and one coming from Spurhill and in the areas where the FM signal collides, it just cancels itself out. On DAB, you have DAB on Block C coming from Mullaghanish and Spurhill, we currently only have DAB on Block C coming from Spurhill, but where they'd collide is additive. So, it's essentially strengthening the signal because on a SFN on DAB, they have to be locked to satellites, times, geo-synchronized so that they're both putting out exactly the same signal at the same time.

Now, we've had problems, we've had a transmitter on Claremont Cairn and Three Rock and there was a slight timing issue, now we're talking nanoseconds they were out between them and it starts having all sorts of weird, you get lots of signal attenuation. So, when it was out all of Dalkey went black so we were getting loads of calls from people in Dalkey saying, 'My DAB set doesn't work anymore'. That's because there was a couple of seconds out between Claremont Cairn and Three Rock and it moves around with atmospheric conditions so it's quite strange.

**So that means you have to keep an eye on that?**

Well no, because RTÉ Networks have the expertise there, there's a whole part of RTÉ called the NMC, which is the Network Monitoring Centre, it's this great big room with off air receivers for television, radio and digital radio receiving and there's alarms across everything and it's being constantly monitored for the whole country so, it's a very very impressive place to see and then if there's a problem they get frequency reports from people ringing in and they send out what they call their Reception Investigation Unit.

A bunch of guys in jeeps and they'll go out and they'll get the scanners up and check that stuff is doing what is supposed to do and if they can identify a problem, the next stage is to get someone up to a mast, identify a problem, it could be any number of problems but it is monitored.

**I've asked the MRBI about digital radio and the JNLRs but they haven't been released yet, do you know how many people are listening online?**

I have but I can't tell you because unfortunately it's not in the public domain. There is a figure but unfortunately I can't, I'm so sorry.

**When the digital switch over happens for television, all these transmitters are going to be knocking around, can you switch them over to radio?**

That's a great question! We're aware of this, there's a whole section of Band 3 transmitters, UHF Band 3 is what analogue television currently occupies, so October this year, gone. The question remains because the aerial stacks, the combiners because all that stuff is technically, technically, compatible with DAB. RTÉ is currently licenced to broadcast on Black C which is up a 227 Mz. Band 3 is give or take, up around that range and we're looking at ways again, this is where RTÉ Radio and RTÉ Networks have to get together and see what can be done, there's obviously huge costs involved and we'd have to do analysis on whether we'd go ahead with one particular format or not but as it stands we're not doing anything until the commercials get involved and we can't do anything until the BAI regulate. It's a great question and a shrewd spot.

I've been talking to people in the U.K. about DAB and WiFi radio and there are some who aren't even concerned with DAB and say they are going to bypass it and go for WiFi radio. Are there any other

technologies that you are looking at or you think could happen? But some of the guys were saying they thought all the commercials would go to DAB and all the Public Service Broadcasters and community stations would stay on FM. Would a two tier radio system work?

It would work you've just got to remember that FM is the main game and will be for a long time in this country, at least the next fifteen years. The majority of digital radios you buy these days, you can get a digital radio in Tesco's for eleven euros where an FM only is nineteen euros so that is quite telling, most of them have DAB, dual band. We're starting to see the convergence of platforms, whether you listen to something on FM or you listen to something on DAB, the end product is the content getting to the listener. There is a question that we currently are working on with ComReg, it's a thing called 'Service Following'. Service Following means, how will I describe this, alright.. Think Sunday morning on RTÉ Radio One, you've got religious services splitting out to another platform, just Radio One. Currently we split our networks so Miriam Meets is on Sunday morning and that stays on FM whereas listeners who want to listen to the religious services are sent to Long Wave, which is another platform and a considerable one still at that

At the same vein, you can send listeners to DAB or online on some particular sets that have RadioVis and talking about U.K., is do we want to implement Service Following, it's done by PI codes and RDS codes and SI codes whether we choose where we want the listener to go. So if you're a DAB listener are you going to be automatically be left with Miriam or are you going to be automatically sent to religious? Now, it's an editorial matter and it's a matter for people like the Head of Radio One to decide what they want. Now we as the operational part of RTÉ, we just facilitate and we do what editorial tells us, we facilitate what their needs are.

Australia, to give you the other example, Australian Radio Management would be deeply suspicious of the concept of service following because they would be so afraid of potentially losing listeners to another platform, they don't think in terms of platform convergence.

**KNBR do that with their two frequencies when they are covering sports, they have some content on both and individual content on both at certain times.**

Well DAB or digital radio will allow us to do that, what we have is subchannels, we don't use them at the moment but to use the example of BBC Radio 4 when the shipping forecast comes on, if you're listening to DAB in the U.K., you'll get this parent/child arrangement on your DAB where the FM stream

continues on Radio 4 and the substream comes up called The Shipping Forecast, so that goes on the subchannel on DAB and on Long Wave on 198. Although I feel, it confuses listeners, what's your primary audience do you want DAB listeners to automatically shoot down to the Shipping Forecast, then return six minutes later? There's all this questions and it's really interesting what's going on with it. Oireachtas, in here, should we have a subchannel of Oireachtas ? Should we have a subchannel, a religious one of Radio One or do we put it on Radio One Extra? It's about where content goes and with all our new platforms there are so many options of where to put stuff, radio player, and international stuff, where do the rights lie for it? It's a tricky area.

**But as a public service broadcaster, you guys have to look at all these options..**

We do, I just want to make a point on public service and apps and internet. Anybody who tells you the future of radio is on the internet, is talking out their backside because basically when you build an FM or DAB network, it's a hugely expensive infrastructural operation, so shall we say, late sixties, early seventies, RTÉ built its FM network and it's been growing all the time and it's been maintained and I'm sure very little of the original infrastructure still exists or is still there. It's hugely expensive to build, however, it's one mast technically serving a whole population, if you add, how do I say this. If ninety thousand people move to Dublin over the space of three years and then some, that DAB or FM transmitter, that Free To Air transmitter, shall we say, bathe the town in Free To Air signals. Ninety thousand new radios get bought, no extra strain on the mast. On the other side of the coin, you add ninety thousand listeners to online, you've got to serve every one of those, one to one. Now, to listen to an RTÉ stream on your app, it costs twenty four megs an hour in terms of your bandwidth, now not an issue of you're at home on your broadband because chances are you've got your one hundred gigs or whatever, you won't go near your bandwidth. But if you're out with your 3G, with Vodafone, you're going to get, eventually blow your band.

**And basically they've brought down all the data plans.**

They brought down all the data plans but from a public service point of view, you've already paid your TV licence, so you've paid for your RTÉ, you've paid your hundred and fifty odd quid for your RTÉ services, now you're going to have to pay again, technically, or you are already technically paying because you've paid Vodafone or 02. Bad public service, very bad public service but we have to be there, you have to be on, you have to be on the app. Twenty three percent of all our listening is on mobile and growing every month. The shift to mobile is just astronomical. I'm sorry to go back to my point about the

internet not being the future, it's simply not the case. If everybody, will the example of the BBC, if everybody who listens to the BBC, on a Free To Air source, DAB, Long Wave or FM shifted to online tomorrow, the BBC, chances are would be bankrupt within about twenty days and would no longer be able to operate plus whatever about the financial side of it the infrastructure could take sort of strain.

### **Would 4G help at all?**

No, because the backend infrastructure and bandwidth is not there. Do you remember back about six years ago you had the head of Nokia, saying 'Yes, we want all this data on our networks, we want it, we want it, we want radio apps, we want it it all' and now they're saying 'Woah, get this off, we can't handle this, too much, too much'. So, now we're seeing this retrenchment of demand where mobile operators don't have the capacity for thirsty applications like radio and television apps and also a very interesting thing has happened in the U.K., you know the BBC iPlayer?

Dave asked not to be quoted as he didn't have the exact figures but mentioned that the BBC iPlayer is responsible for 'something like' twenty five percent of all internet traffic in the U.K.

So now, what we are seeing is ISPs like Tiscali or AOL in the U.K. saying 'BBC, you've got to pay us.' BBC now, whatever about paying for their own bandwidth, they now have to pay some sort of remittance to the ISPs to pay for the success, they are essentially being penalized for the success of their product.

### **So when the government was talking about bringing in a charge for everyone, instead of a television licence for everybody accessing Public Service Broadcasts, this is one of the reasons why?**

I'm not going to comment, I can't second guess what the rationale behind Pat Rabbitte, the Minister's position was there but essentially I would see it as a positive thing. It's essentially a data charge, a public service data charge. Now, whether your source is coming from a Free To Air source or an IP source, one way or another, it makes more efficient use of a licence fee, I believe.

The other thing that I can say is apps, OK, when you're sitting at home listening to 2XM, it's costing about twenty four megs an hour or thereabouts because it's a 48K stream AAC, if you're listening on your iPad. So I guess you'd listen in through the radio app right? That's, as I said earlier represents bad public service because it's you technically paying, well that's over 4G but technically if you're at home, you've still paid someone so there's a fraction of you paying twice. So, what we're in the middle of developing

with Samsung and a bunch of people called the IDAG in Norway. For the past four years, we've been banging on the door of Samsung, Apple and Nokia saying, 'Look, all of these devices have FM receivers in them, a Free to Air receivers. What sort of a phone do you have, an iPhone?

### **I have an Android.**

There you go, that's the example I need. You can go to the FM receiver and you can go to the FM receiver and plug in your headphones and you'll get something really rudimentary 90.7 there you go, 2FM. But there is no facility thus far in an Android phone for an application to make a call via the app to the FM chip, so you can listen to FM radio but you can't listen to FM radio via an app. So, what we're in the middle of trying to develop and were getting there, we're making progress is, take the example of the RTÉ radio player, we are trying to develop the radio player so the heavy lifting, the heavy lifting in the app is the stream, that's 22MB an hour. The data, you know, the now playing, picture all that metadata and associated data, that's small data that's a couple of k. You know the now playing, next up ?

### **Your programme associated data?**

Programme associated data, essentially but the heavy lifting is your 22MB, the stream. So what we're in the middle of developing with Samsung is the radio player, a hybrid version of the radio player. So, if you're standing in Limerick and you switch on radio player, it scans and goes 'Oh, there's a DAB signal here' and this Samsung device has a DAB and FM chip in it, and it says 'Oh, there's a DAB or an FM signal here, well I'm not going to use the stream, it's costing this poor user 22MB an hour, I'm going to switch the audio source to be from FM or DAB and I'm just going to serve up the light lifting from IP, which is tiny.

### **You've just changed the conclusion of my thesis.**

Well, it's convergence and it's good public service and we've been asking Samsung in Ireland and you can understand, Samsung in Ireland is not important enough in the grand scheme of things for them to go back to Seoul in Korea and go 'We want the API bridge for all Samsung devices to be able to make calls in.' But finally IDAG, which is this industry digital radio group based in Norway which we are members of, they have a lobby, so there's RTÉ, the German broadcaster and the Norwegian broadcaster, NRK, are going to be the three broadcasters that launch with their own versions of the hybrid app. We're still under NDA, Non Disclosure Agreement about the technical aspect of what's in the API bridge but it's really

really good news. It's about convergence, it's all about convergence, people will talk about 'The internet's the future, no FTA is the future', they're both very important but in the next twenty years, the internet cannot supply what FM or DAB can supply.

**You've just changed the ending of my thesis, I've been reading Henry Jenkins work about Convergence and he has always been talking about what you can do with phones.**

The reason that that API bridge was closed for such a long time was because I believe, and I'm not speaking from RTÉ's point of view here was I believe the reason that the API bridge was closed for so long was mobile operators and telephone manufacturers, it suited them to have people get all the heavy lifting done by IP proprietary paid sources but now we're in the situation, where there's such a shift and such a huge penetration of mobile devices, the network can't handle it anymore so they're a little bit going 'Yeah that's probably a good idea, let the FTA sources through'. Does that make sense? That's my opinion.

That's where its going and there's a device called the Pure Sensia, you might have seen it, it's very very fancy digital radio. It's got FM, Long Wave, DAB and DAB+ and RadioVis which is internet radio with lots of pictures. I used to have one here but I got rid of it because it was, too much, in terms of simplicity. But the idea of the Sensia was it was a platform convergent radio, it was more like a television, like a little egg and there's no dials, it's all touch screen and I think that this radio didn't know what it was, it didn't know whether it was a television or a radio or an internet device or almost like a tablet but the idea was if you were listening on FM and your FM signal broke down it would instantly go over to Radio One and you would have no break in the signal. It's a good idea, its just about ten years, no, five years ahead of its time.

Don't underestimate the power of FM and how important it is. The Norwegians said that they are turning off FM in 2017, the King signed the contract or whatever legislation early last year. The U.K. have said when digital listening hits fifty percent, it's currently at twenty two/twenty three then we'll name a date for FM switch-off. They are two different approaches but I would think the U.K. one is much more pragmatic. The other thing to consider when you're talking about FM switch-off, which is not going to happen anytime soon in this country is, it has to be done correctly. In the U.K. tried to make the DAB network match the frequency plan, they planned out the DAB network similar to how FM works. It doesn't work the same way, it's about multiplexes and ensembles as opposed to single frequencies and that's where you've got to consider that when you got it. You've got to do it right.



The reason there's such a resistance to DAB to some of the smaller services is that there's such a barrier to air because of the costs of getting onto a multiplex. Local Muxes over there cover such a huge area, they're paying huge carriage costs and the Mux operators, by and large its Archiva, who are the only game in town in the U.K. and you're a community station and you want to get on, on digital radio. What they do is sell the entire ensemble.

There's eight hundred and sixty four capacity unit in an ensemble. 2XM is currently running at 128k during the daytime and it's error protection rate is UEP3, that uses ninety six capacity units. Junior runs at 80k and that uses 80k, if we drop 2XM down to 80k that would then also, the idea is robbing Peter to pay Paul with digital radio. Really the lowest acceptable level you could run a music service like 2XM at is 128k, run it any lower, you'll start getting the musos going 'That sounds crap'.

### **That's why they ran into trouble in the U.K. when some stations dropped to mono?**

Yeah, they're just squeezing them in. We run Lyric FM at 160k, which is, in all reality, it's not enough but it's a high enough bit rate in terms of our multiplex. We still have listeners to Lyric complaining that it's not enough and they're right. And they're on.

Long and short of it is, DAB+ has three times the space that DAB has so DAB 2XM runs at 128k, again, subjectivity it could run at 48k on DAB+. So you fit three 2XMs into the same space or taking the example of Lyric, you could run Lyric at 160k DAB+ which would be beautifully full in its dynamic range and we would keep more people happy.

There's nothing you can do with FM if they switch it off, more ambulances and air traffic control?

No, there's nothing you can do down that end of the band, 88-108FM, I believe they are no plans to anything with it.

### **And if there were, the BAI would have to put it into any licences?**

It's a matter for the BAI and ComReg to facilitate really but FM, I would say we can come back and have this conversation in 2025, FM will still be here, there'll be loads of other platforms, FM will be just there along with all the other platforms. Peoples listening habits are changing too, and FM supplies what we call linear radio, you tune in there, done. But radio with a long tail, on demand, catch up all that, all the

platforms that facilitate that are of growing importance and we're seeing things like, News and Current Affairs. RTÉ Radio One puts that stuff out seven to nine in the morning, one to two and then four to seven. People listen to that and as soon as it goes off air, it's out of date. On the radio player, because we see all the metrics and stats coming back from that, it's got a very very short tail where as Doc on One or feature based or storytelling type radio or drama, features, investigative...

### **They've a longer shelf life basically?**

Much longer tails. We have a listening measuring figure called a LOSWAL, Listened on Same Week As Live, you can have it the same month as live but you don't want you're content having this huge tail going back years, a week is fine. So one hundred and sixty eight hours after transmission, the LOSWAL is tiny for News and Current Affairs but the LOSWAL is steady and significant for feature based radio. It's for obvious reasons. We're seeing people listening habits change.

### **And podcasts and stuff?**

Podcasts are very very important. There's a lot of discussion about podcasts . People say, 'Oh I've twenty million subscribers to my podcasts.' Twenty million subscribers doesn't actually mean twenty million people listening. When you come into your device, you might not even switch iTunes on to download it. That's just subscribers, we can't put a weight on that because you can't translate twenty thousand subscribers to a feed into twenty thousand listens in full to your programme because when people listen on demand, you can tell exactly how long they've listened, where they've listened, that's pretty much the only metrics we gather, we don't gather anything else as that's all that's important to us. Where as with podcasts, we see how many have been served but what has been served versus the subscriber is a very very different thing and when you're talking about commercializing this, you have to put a certain weight on it to offset the subscription and actual listens. It's tricky and it's a new area we are trying to navigate at the moment.

As we leave the table Dave says:

There's one point that's worth noticing (making shapes with his arms) at seven o'clock in the evening radio does that (making a going down slope with his arms) while television does that (making an upward gesture crossing over).

## *Appendix B.9*

*Interview with Pat Balfe, Head of Technical, Communicorp*

*Aungier St, Dublin, April 12 2012*

### **What's the hold up with DAB in this country?**

My understanding is, that currently as it stands, technically, there would not be enough spectrum to issue DAB licences for every broadcaster that exists in the FM realm. With that in mind it certainly something that while the BAI are certainly not ignoring this by any means, it's my understanding that the BAI won't be looking at this until next year, in 2013. That could be because when analogue TV turns off, the spectrum that some of the analogue TV is sitting on becomes available for licensing for DAB.

Communicorp is focused currently on online platforms, making sure that our existing FM products are broadcast to a very high standard on the FM platform, that we have very good robust coverage for both our mono and our stereo signals and that we then can deliver that offering, online, on apps on PCs and wherever somebody may want to log in to check out the station. That's where our focus is at the moment. Once 2013 is over and if the BAI brings it into focus, then DAB is where we will also be looking.

I think there are some merits to some DAB trials and less so to others, I believe that DAB trials that test the technology have merit. I think that DAB trials that try and test new brands and hope that you have a consumer buy in fragment the industry a little bit and may not be as beneficial to the industry as a whole. The last thing the industry probably wants is to be fragmented, where you have a flood of new products coming to the market and you could actually end up having the situation where, while their may not be a consumer demand for the product, someone has to bank roll the product. When you come to a commercial side of things, that's something that you have to be very careful of. When you move into a new platform with a brand new list of services, increasing choice, you have to ask 'Is there demand for that choice? Is that new bunch of programming material actually required in the marketplace as it stands?' For our population, we have quite a number of FM services from Classical, Youth, New Rock, Classic Rock, Dad Rock, up to your magazine style genre so we're covering a fair majority, I can imagine, of the actual tastes that are being demanded from the listeners. That's why I think also the DAB question needs to be looked at is the technology providing the facilities new services to give people an in ? But, is the actual market there to maintain these services?

**A lot of people who are pro DAB, speak about choice and how much choice DAB gives, you've**

**mentioned everything that's there already, what else can they provide?**

I'd like to see research to see what consumers ask for that doesn't exist as it currently stands and I'd like to see research to see if the consumer gets this, who actually pays for it? There's only one advertising pie and everyone needs to get a piece of that. If you increase the numbers, are they still sustainable? I think that's a very important question. When a new service comes in and someone says 'We can run this at X cost', is the revenue there? Does the business plan meet the technology to make sure it's a robust, solid plan with the proper belts and braces you need to run a business and throwing a hundred stations out on the market and finding nobody is actually listening or there's no appetite for a listeners side or the advertisers side. That's one of the key elements, in what I've looked at around DAB, that didn't show up.

I can see how DAB in the UK is good in the regions where there are no FM frequencies available. The thing you to bear in mind about the UK, the driving force behind DAB rolling into the UK and the uptake was obviously Ofcom brought a sweetener to every licence that was brought in. They had a rollover extension of whatever, five to seven years, on what was their normal Ofcom licence. Broadcasters bought in because they didn't have to worry about licence renewals.

The other thing is that the UK had a very large number of AM that had no quality platform, so the AMs went to DAB, leapfrogging FM and it meant they immediately became available in this stereo, high quality format. It gave them a quality terrestrial broadcast channel.

The whole idea of ubiquitous FM radio is its big selling point, everybody at some time in their life has a FM radio, most houses have probably two or three FM radios, it's everywhere. The in car listenership is also key. People are driving in their cars and I think that in the UK only twenty percent of new cars are coming with DAB receivers, so there's a lot of cars being sold in the UK today that only have AM/FM radios. So people aren't being presented with the technology to listen so people are blind to what's on DAB.

Please check this, wasn't it the independent lobbying group of radio, requested the analogue switch off ? Because the current situation is they are covering dual transmission fees. If you're, say you bought into Magic, Kiss or one of the radios, you have FM network and you also have your DAB network and your carrying your dual transmission fees. You're getting revenue out of one, not out of the other and you're having to bankroll the innovative side with your FM. I think that's a consideration, if we went down the route of where every station must be on DAB, it has to, for a number of years, carry dual transmission. In

most cases in a radio station, transmission could be their single highest cost, apart from royalty fees. And you're looking to land an extra cost on top of that, the money element is a massive factor.

**Do Communicorp ever find any pressure to keep up with what RTÉ are, seeing as your national ?**

It's probably not a question, from my side of it, the technology side of it, no. The pressures come from the listeners, the market, the demand, the commercials not from as much as what RTÉ would be doing. RTÉ have access to technology that we can't, it's not a space we can go to, commercially it doesn't make sense to us. Certainly, not from our side. That's a tough question to answer, does the market create pressure or does one person within the market create pressure.

There's probably, I wonder if the reverse is the case, we came up with Radio You Can See and have that up for ages, the Radio One came in with Radio You Can See, it's hard to know where that sits. RTÉ have great resources and great people, creative people. I'm sure everyone is doing their best to provide a service.

**Do you know how many people listen to you through digital platforms?**

We know how many people listen to us online, I suppose and that being a percentage of our overall listenership is a hard one to measure because which one do you take? Does the JNLR capture someone listening online? We know how many people the JNLR tell us are listening over the air, we know how many people are accessing our streams, we know how many we have accessing our podcasts or our archive system.

We can certainly tell you X number of thousand people listening online, they're listening to the Ray D'arcy show online for Today FM, they're listening to Tom Dunne online for Newstalk. I can tell you in the mornings the app has a peak, a very steep rise starting from seven A.M. which stays consistent until about nine A.M. I can tell you at nine A.M. the website kicks in and that continues and starts dropping off about the half four, half five mark where the app kicks in and meets another peak. You've got two app peaks and the value in the middle is being filled with the website. Anecdotal evidence would suggest that certainly, people are using the apps to stay in tune while they are commuting. That's something we didn't have before the app or the smartphone. We had a website that always got listeners during the day for years, we've had this, but now the smartphones are actually bringing people to work.

The introduction of I.P. based delivery of our audio so anyone can stream to their handset. It's an unregulated market, if someone wants to listen to an eighties station through the Shoutcast directory, tune in and off they go. What we are finding is that the introduction of the smartphone or I.P. based radio is giving our listeners the opportunity to stay with us while they are commuting where they didn't have that before, on the bus or the train unless they had a FM walkman or something like that and then allowing them to continue in work with the website or stream and then back to the iPhone or smartphone, whatever it is.

### **A lot of people seem to be concerned about the cost of bandwidth?**

Bandwidth is very expensive, when you stream television, when you stream radio. I'd be interested in seeing a cost analysis for a number of listeners, if you were to serve them over an I.P. based network, whether that cost would equal the cost of a national distribution network. It's not something I've sat down and done but I'd be interested in seeing. I don't know how far apart they'd be but cost isn't a great concern we have in the streaming of our audio. We see it as a huge benefit to the company.

Pat then tells me about the Communicorp group.

When you discuss anything which is based around the group, these are independent companies as such and they may have different views on different areas. It's a very important thing to acknowledge, DAB for Newstalk might be different that the value of DAB for Today FM, they value of I.P. Radio is probably consistent across everyone, you might say delivery of content on I.P. is more valuable for Spin who have a younger audience, than it maybe be for Newstalk who have an older audience.

## ***Appendix: B.10***

***Interview with Peter Bradshaw, United Christian Broadcasting (UCB)***

***Nangor Road, Dublin, April 13 2012***

**Where do UCB stand now, you're not on FM, does that mean that DAB is an important method of transmission for you?**

Basically, we've been through the whole thing with FM, we actually did apply for a licence and we didn't get the licence. We followed a very similar pattern in the UK, that was legal issue but they were eventually allowed DAB so that was their natural choice. When we came to apply for a licence, we didn't get the AM/FM but we decided to go for satellite, so we got the existing three year temporary satellite licence which was available and when that came up for renewal, it turned out, because satellite is already digital, cable is already digital, we found that when we applied for the renewal of our licence it was under the 2009 (Broadcasting) Act which was a digital content contract.

I think the other side of that there's probably not sufficient frequencies available to licence another national service, which has been our vision in virtually every country UCB is operating. We're not just in Ireland, we're in New Zealand, Australia, parts of Africa but Africa is slightly different. How it has worked out for us, that's the door that has opened for us, so we will take every door that opens.

**Within each country, are you a separate company?**

Ah Yeah, it's an affiliation. But coming back to where we are, we've had to deal with the regulatory systems, we've found that we probably would have been on FM, if FM had become available. FM didn't become available and DAB was the best option to us, we're already on satellite and cable so what we wanted to do we wanted to get a terrestrial platform, which will reach even more people in their houses and in their cars and stuff like that.

**You're broadcasting now on Satellite, how much feedback to you get from satellite radio?**

We get a fair bit from email response and phone calls and that, there is another another side to our organisation that it we also have a very successful, what it known as a devotional, 'a thought for each day. So, they've taken an interest, one for the word for the day and the radio and then for 'Prayer line', if they need a prayer then, they will phone us in on that so there are different elements but

radio is gradually becoming more important, the more available we become. I think going to NTL, or UPC as it's now called was a step forward and more people are listening to us.

**Are ratings and things like that important to you guys?**

We are a non for profit charity, listeners are important but I think it's quality rather than quantity. We've got people who listen because they really want to listen and we're doing something completely different. Christian faith is important to them and it's important to us, it's not that numbers aren't important to us but I think, we're much more interested in individuals lives who we can help and touch. It's kind of a Biblical thing, if one person is touched, there's a party in heaven.

**It is the content then that you want to make sure is up to scratch?**

Absolutely, yes.

**When did you start broadcasting in Ireland?**

We started broadcasting in Ireland in 2008, we applied for a licence in 2006, we got that but there was a bit of a delay because Sky were in the process of upgrading some of their set top boxes because they were a bit concerned that if they put too many services on, some of the boxes would fall over. SO we didn't get on air as fast as we would have liked but we were on air at the end of 2008.

**What way was your first means of transmission?**

Satellite was the first.

**What way does satellite work?**

We go on a lease line from here to London, to Archiva who handle our uplink to the Eurobird satellite which is one of a group of satellite used by Sky service, we're on as a Free Service, not as a subscription service. It goes up via London. It's like having a transmitter in the sky instead of at the top of a mountain.

**Obviously there's not FM licence here...**



The way the BAI have put it is that there is not sufficient frequencies available for a major project, which we can only interpret as I don't know precise number but it's unlikely there would be any more national or quasi national services.

**For someone like yourselves to go into get county or region, it wouldn't be financially viable.**

Today is the final day on the consultation of local licences, basically what the BAI are saying is that they are renewing only frequencies which have already been allocated. There'll be nothing new added.

Certainly in the commercial, there may be in the community end of things, there could be half a dozen new community stations, that's the impression we have, obviously it will become a bit clearer when they release the findings.

**If there was anything about a digital switch over would that have needed to have been included in current licences?**

Not necessarily, it's not actually clear because the 2009 Act covers the licence that we have which is the content provider, then there's the Mux licence, which they simply haven't talked about.

**But they also say for Community or Non for Profits that they will help them get on digital, what does that mean?**

It means that they will talk about it. As I understand it as we're going. We have a situation with analogue television. Analogue Television is occupying VHF frequencies around 175-215 Mhz, I'm not exactly sure of the exact frequencies but I know DAB is in that vicinity, it's around 200 Mhz. My own personal view is that the first move is to clear that space, which will happen. The UK is different as it was UHF, it adopted UHF many years ago. We've got a combination of UHF and VHF still in operation. Obviously with digital television, we'll all be on UHF band and you will have this space freed up. Again, it's probably only something that ComReg or BAI absolutely answer but my point of view, as someone who has worked in the engineering sector is the first move you do, is to make space and it would appear that from analogue to digital is going to free up space for much more DAB than would presently be possible.

If you look at the document, the Licencing plan for 2012/2013, yes it is renewing all those licences until 2022 but I don't believe it rules out the possibility of licencing DAB in parallel. It's exactly the same situation you've got in the UK, you've got all the FM and you've got all the DAB as well.

### **So what will they do with FM?**

I can't answer the question of what they will do with FM unless at some point in the future they give you a date to switch over, it's not going to cost you more in licencing, we'll switch you off one and switch you on to the other and then it will be a case of the cost of digital versus the cost of FM. The UK prices are astronomical, I think the view of people in transmission here is that it will probably be more competitive.

### **Are you taking part in any DAB trials?**

We're on target to go as part of the DBDB which is starting in June of this year as long as nothing stops it between now and then and as that expands then we will go with it. I also should say that we are on in Waterford and have been for the last two years. Really, in a sense, every opportunity that's come our way...

### **That means for an independent company like yourselves you have to go to very independent Mux if you wanted to get coverage in every region, you literally have to wait until somebody does that?**

Yeah, we would obviously would have to wait if we wanted to get on national coverage but at the moment we certainly couldn't afford national coverage or we would have to do a lot of fund raising to hit that. At the moment if we can hit the major cities, which is what we did last year on a FM trial, to heightened our profile and we could cover the rest on cable, MMDS (Multichannel Multipoint Distribution Service – wireless cable), satellite and internet, we would be quite happy with that on the short term. The other thing we have to bare in mind is that internet is gradually going to improve, the mobile phone technology is going to carry, much more reliably.

## ***Appendix: B.11***

### ***Interview with Gregory Orton of Solaris Mobile***

***Solaris Mobile, Upper Pembroke Street, Dublin, April 18 2012***

#### **What is Solaris Mobile?**

Solaris Mobile is a satellite capacity with spectrum in each of the twenty seven member states, we have radio spectrum, which are frequencies adjacent to the UMTS bands, which are the mobile network bands at 2.1. So anything that a mobile network operator uses, we've got the frequency band just above that and we've got two time fifteen megahertz of that all across the E.U. member states. That was an authorization granted to the company back in 2009. As part of the grant of authorization, it was licenced as a mobile satellite spectrum so in order to pre-adhere to the condition, you had to launch a satellite. Our two parent companies are both in the satellite business but the fixed satellite business so anything that they point to, so from the sky they point to anything that's fixed on a building, satellite dishes, usually Sky or broadcast T.V. or anything that needs a fixed antenna, that's what they deliver to. The element that they were trying to bring to the market was Solaris Mobile, which was the mobile element of the market so anything that you could potentially broadcast to, or datacast or return path to a mobile device, they wanted to get access to that market in Europe.

That's how Solaris Mobile came about, it was a joint venture between Eutelsat and SES, they're publicly listed companies, very well heeled and doing quite well in their own market but their competitors in their own market, which is quite odd. They set up this company to go after the mobile side of the market and at the time really, the business plan was mobile TV, so really it wasn't even part of the landscape. 'We're going to deliver mobile TV to the masses in Europe'. Because they do it on a fixed basis, why wouldn't someone want it on a mobile basis ? It just didn't take off. The market didn't materialize and there were a lot of reasons why the market didn't materialize.

First of all, mobile devices, we're only beginning to pick up that ability to receive broadcast. Second of all, you've got a latency issue with a satellite. A satellite is thousands of kilometres up in the sky, when you're broadcasting to a device it needs to have visibility of a satellite so it needs to have visibility to a satellite, so if you're standing outside and you have a mobile device you've got to have line of sight to the satellite up there in the sky somewhere. It's just a ten degrees east positioning, so you're having to make your phone have access to, direct access to the satellite and then you can receive whatever content over the phone, being broadcast over satellite.

## **So in cities, buildings are going to be an issue?**

Correct, so you had all these issues. I think, this is a personal opinion so you can take it whatever way, it wouldn't be company held position, put it that way. They made a mistake from the perspective that they launched a geostationary satellite. Geostationary just means it sits in one position and they were trying to deliver to a mobile base. So, you think of trying to deliver to a mobile base with a fixed piece of infrastructure, it's got to be able to adapt to what's happening in a mobile space and it's not able to do that. Mobile network infrastructure can adapt, because, well O.K., it's still fixed infrastructure, say the population move fifteen kilometres away from.. Dublin, you just set a mobile mast fifteen kilometers away from where it is and you've got a backhaul on the terrestrial side and straight away you've got a linked in network.

So we didn't have that advantage, we set up a geostationary satellite to a mobile world and it just didn't work. The business plan then for mobile TV, we took a backwards step and said 'What are the benefits? What can you deliver with a satellite today?', particularly as the mobile market wasn't available and what we came up with was, there was a list of different things but one of them was broadcasting. And broadcasting in its broadest sense, so that can involve datacasting to cars, anything you can think of that streams over satellite, that's just an uplift from one and then beamed out to many. And I guess the big benefit might be, or the big market you might look at is radio.

So we looked at the radio market. Radio remains a significant element of what we may want to get into but the difficulty is, as I said before, that we have a geostationary satellite and if we were ever to deliver to a mobile market, as you just eluded to before, if you're in a city, how do you deal with that problem? You need to have a direct line of sight to a satellite then you've got to start building a terrestrial infrastructure and then you're starting to get back into the whole issue that you might have uncovered with DAB, which is cost. So there's all these problems that you would have to overcome in order to get access to a media that maybe, many would say, it's traditional and old and perhaps, I don't want to say it's on the wane but you look at a lot of studies and it's been eaten up in a different way so it's not traditional radio anymore. People are consuming radio, yeah, fine but music, and you have a view on this more than, probably a better view than I would have because you're coming from that side of the market.

We've done a number of studies and one of them was with a company called United Radio in the U.K., who are guys who have been embedded in the radio industry in the U.K. for a number of years and they

came back and said you have to understand that the radio market today is very, very, it's dispersed quite dramatically. It used to be that everyone would just listen to it on their handset, a fixed position handset in your house, you turn on the radio and you consume whatever you are consuming, now it's done by car, it's done by phone and how people consume is now done over a number of different platforms, it's FM, it's DAB, it's satellite in the U.S.. Satellite hasn't hit here so you get, there are so many issues and so many ways of trying to get to a consumer that the way they are looking at it is, that it's becoming a very web based platform and that in the future it would be web based and it kind of makes a lot of sense because even when you get into the vehicle side, so you're talking about the vehicle industry, which is pretty much where you've got a captured audience because you're sitting in a car. You don't have any other option but to listen to it. Not that you don't have an option, you can't look, you can't move, you can't have anything else visually so it's got to be audio whereas if you're walking down the street you can pick up your phone and you can have a video/audio feed and you can look at that and you're captured with that, you're not endangering yourself or endangering anyone else. From a vehicle side, it's very much an audio side then when you get into that market it becomes a very mobile type business and mobile in respect as it's almost a 3G enabled service, it becomes a mobile service delivered over 3G networks and cars just become connective vehicles and they just have a SIM card built in and you just receive whatever you're receiving, like web radio, so you just get audio instead of the video.

**3G is good when it works, but awful when it doesn't, if there are too many people trying to access the same cell. So from talking to people I would be led to believe this isn't going to kick in until 4G is in this country.**

Correct, you're absolutely right, it's going to take another level of capacity from a mobile network and their ability to deliver. Coverage is the biggest issue with the mobile network, it's not necessarily capacity because it's inbuilt for capacity but when you're talking about coverage, it becomes a bit of a hassle to cover ninety nine percent of the country because you're delivering to some outpost in Donegal, a mast that only really serves ten people. It's a very expensive piece of kit to put into the ground to serve ten people but you've got this coverage requirement from the government so you've got to do it. Then, it doesn't serve huge benefit for the mobile network side, delivering to a small subscriber base so I agree the 4G element will help because you have an increase in capacity or capability to deliver, data becomes less of an issue. The amounts of data for radio are slim, it's a slimline data feed because it's just audio. We've looked at that ourselves, I guess the benefits we would always see from a satellite side is that you have ubiquitous coverage of an area straight way because you have a satellite overlay but then you've got to inbuilt for quality service, where that's the issue we have. Whereas mobile networks don't have that,

they're already built for coverage anyway, they're only inbuilding for data. As you say, if the data capacity is there, which it will be there, it's going to be less of an issue, then it comes down to buffering and that's just a technical issue you've got to deal with. You've got to put in a better buffering layer, the buffering got to be, instead of being ten seconds, it's got to buffer for twenty four or one minute to deal with any delays that you have and that can be done. It can be done quite easily on the unicast side, it can be done, it just means how much data capacity you are taking up because then you're buffering and buffering and you're eating up data. It would be the same with us from a capacity side from a satellite, when you're buffering it's taking up your own data time. It's a cost to us, it's an overhead cost but it guarantees quality service to an end user or customer.

**Basically, you try to get your signal and get it to a mobile device, if it's not web based how does that mobile device receive that is it an inbuilt satellite chip or what way does that work?**

Correct, these are technology issues that we are always trying to fight with. About three years ago we started investing in technology and we invested with a French company called DIBcom, it's DVB, it's Digital Video Broadcasting standardization chip and it was SHA so it was satellite, handheld and A is just the first element so it's for Alpha, so then there'll be a Beta and you develop the chip as it goes along. So we developed the DVB-SHA chip and that was done so we had about ten thousand units of those available and then we basically packaged those into a receiver. The receiver was built by a company in Italy called Quantum and they were built for cars. So, we looked at the automotive industry first, we didn't look at the hand held industry because, it became, it's too difficult. Too difficult to get a chip into a phone, into a handset, very very difficult to do that today.

**Is that a size issue?**

The chips are tiny, it's not an issue on size, I guess it's more an issue on, mass production and why would a mobile operator want to have your chip in there when they'll just say 'Oh we can get it over the web'. You look at all the radio stations that are out there in Ireland today, I would imagine over ninety percent of them are web based now or they have access to a web base and it's cheap for them to go web based. It's not a huge cost where it's more expensive for them to deliver over a DAB or terrestrial network, so it's cheaper to get into web. A mobile network operator will just turn around to you and go if people want to consume they will consume over that and we don't need your chip and you can kind of understand that and that's fine and that's there view and if you want to get into that market, that's what you have to do. So, you would never have a defined terminal for listening to radio direct from a handheld, from a satellite

unless it was integrated into the handheld device, which is your phone and as I said there are issues in getting that to happen and particularly dual mode so the handset would have to become dual mode to deal with our band. There's just a range of issues other than just wanting to have it in there, then you've got to have a chip defined to mobile to exist in our band a 2.1gigahertz, so it's got to cover our spectrum frequency band, then it's got to be able to listen to the satellite, then you've got to plug it in and interface with the device. All these things that a mobile network operator would just go 'Not interested, too much difficulty'. And then the bottom line is, 'What's the business plan?' You'll say well we're expecting radio broadcast to pay us carriage on the satellite to get access to this market and they'll say “well, they've already got access to their market traditionally, they've already got access to their market over web, it's not a flyer'.

### **Why has satellite radio taken off in the U.S. and not here?**

A very good question. We've looked at this in a lot of detail because SiriusXM are obviously the example you're talking about in the U.S.. It's been a success in America for a couple of reasons, first of all, they all speak the same language. So, that's a good start. Second, it's a homogeneous market, the language, OK, but if you're working in the States, you're working under one federal law so if approved you're FCC approved and that's it, you work away, it's not siloed into each state. Each state is there but it exists under a federal capability, we don't have that in Europe. The main reason is somebody believed in it and they were prepared to put a significant amount of money behind it and to be honest when XMSirius started off, it was two separate companies, it was XM and Sirius and they went after two separate licences and the FCC wanted competition so they kept it separate, it was going to be a satellite radio platform but two players in the market. But, it just didn't work because they realized that first of all you've got to put satellites up there and that's expensive. Then you've got to build your market and a market that's very difficult to tap into unless you've got volume. You've got numbers because the benefits that come are advertising or subscription. They're the two models, you either have subscription or you have advertising or you have a blend of both.

XMSirius were able to deliver the satellite element into but they then also became vertically integrated, they started to develop the back end, the studios, the content and the content is exclusive to Sirius and that's the benefit they have. They have this exclusive content generated that's cost them a lot of money, they've brought this together, there's no secret to the fact that their success is because they have exceptional premium content, same as Sky have in Europe. They've got content that they have developed themselves and nobody else has access to that and they will pay to listen to that. There's a number of

factors to their success but if you look at the financial side of SiriusXM, they've probably put altogether about four and a half billion dollars into that business in the U.S. They only became cash positive last year, it's been an absolute struggle and they were on the market in 1995. They came around about that time, dates and facts you can look up but if you look at it from that perspective, somebody had to believe in that business for over fifteen years before it even started to turn a penny.

**During the course of a couple of conversations, it came up that the U.S., if you're driving is like the movies, with one single station?**

Yes, the FM side.

**So, if you happen to be living in these areas where there isn't a great FM range of stations but you have satellite, it opens a big world to you?**

Completely, that's the other thing in America, they don't have an awful lot of choice, or they didn't have an awful lot of choice. If you're in the back end of Idaho or something, you don't have many radio stations and satellite gives you that ubiquitous coverage.

If you send over three hundred channels on a satellite on the radio side, takes up a satellite platform, takes up that Mux, fine, but then anyone who buys a receiver in a market, from their local store, gets access to over three hundred channels and what do they pay? They pay eight euro or ten dollars, whatever it is, between ten and fourteen dollars a month, I think is what Sirius charges and that's tending downwards anyway. But they are prepared to do that because what's the alternative? One country music station. It's just a no brainer, if you can afford to do it, you'll do it because there's just no alternative. If you're in Europe, or you're sitting here in Ireland, I've got, I can turn on the radio and I can get DAB on the radio, I get FM on the radio, pickup my phone and I've got access to every single web based station that's out there, which are pretty much all the ones I'd want to listen to anyway. And then you say 'What's the advantage of having satellite?', that's the problem. First of all there isn't a completely diverse offering, what you're going to get over satellite is probably what you're going to get over terrestrial, DAB, whatever network, whatever way it's delivered, you're going to get the same content, it's going to be TodayFM on satellite or it's going to be TodayFM on DAB and until you develop that content element and say 'Well hang on, we need to have exclusive content that's separate, then we really need to put an awful lot effort into..' For example, you being a DJ, if you have a following people will say 'Well, I'll listen to that and I'll pay for that because she has a following'. Like Howard Stern did in the U.S.



You're the commodity, it's not the radio, you're the community that brings the customers to heel, to use and to pay for the service. That's something we've found difficult in Europe because there's a language barrier. How many people will listen to you and understand you is a problem. Your music, your style, your choice, your culture and your background is all siloed to the U.K. and Ireland type area so you're probably not appealing to someone in Italy or Germany or Spain. Then, you've got to have a range of different options but they've got to be in different languages, they've got to appeal to that culture, it's got to be exclusive content for that country but also have sort of a European feel so people can go 'Ok, I can listen to that'.

These are all the problems that you have and on top of these you've got regulatory issues as well, as I said in America you've got one licence and you can go and do what you want. We have an authorization but we don't have a licence in every country so we'd have to go to each of those countries and say 'We want to set up a broadcasting..', you have to go and get a broadcasting licence. Now, I'm not saying that a huge problem but there's a cost associated with that too and you're not going to do that unless you have something valuable to sell which is the content only.

**You have the authorization for this satellite to broadcast in every E.U. member state but then you need a licence..?**

From the national regulatory authority in that particular E.U. country. The E.U. commission gave us the authorization, granted the rights of use effectively to use the spectrum and the satellite element of that within that spectrum frequency band to broadcast across Europe or whatever you want to do with it within the mobile satellite service envelope. Whatever that may be, whatever those services are but one of them happens to be broadcasting. But then, you've got to go to the national regulatory authority, in Ireland.. You go to the telecom operator so you go to ComReg here and you say 'I want to have a licence to broadcast satellite radio here' and they'll go 'No Problem' but there'll be a cost associated with that.

**Because you have the authorization from the E.U. and because you have a licence from ComReg do you still have to go to the BAI?**

You've hit another very interesting area, the reason why is we probably wouldn't do it if it was just siloed into Ireland, so if we were able to go to someone like the BAI, 'Look, we're delivering a radio service into Ireland but it will be a transmit receive into Ireland only'. They'll probably go 'that's really not an

issue', now that's my feeling it on myself, we've never actually gone to these guys and said that because we just don't have the content platform or an appetite in content platform to be able to do that. I would imagine that if they were to turn around to us tomorrow or we were to turn around to them tomorrow, and say we're bringing on stream a plethora of channels RTÉ, TodayFM, whatever it is 'they're Irish channels, we're going to transmit those into Ireland, would you have an issue?'. I would imagine there's no issue there at all, no problem here at all.

### **They're here anyway?**

They're here anyway and everyone is ticking the box. Now the only issue and we've come across in other countries is that when you go outside Ireland. So say now, we're transmitting TodayFM into Austria, now there's a landing issue and a broadcasting rights issue there because they are saying 'well hang on a second, in Ireland we can monitor what you're sending out on the satellites in terms of rights for the music and the royalties that need to be paid back'. Then they've got to start to have some sort of framework, I mean, TodayFM only have broadcasting rights in Ireland. I don't know how that works but it's become an issue for us and when we went to talk to these guys in United Radio, who are a consultancy outfit in the U.K. they said 'Well, you really need to look at this because it's a real issue. It's a rights issue that you'll come across that you're broadcasting content into different parts of Europe and you may be brought to heel by different associations and different people'. I can't remember who they are in the U.K. but they were mentioned quite often.

### **PRS (prsformusic.com) or PPL (ppluk.com)?**

PPL. They effectively look after royalties for the musicians so if you play a tune on TodayFM or whatever U.K. radio station you play it on, then there is a royalty element that needs to go back to the artist and the PPL need to look after that royalty element for the artist so they are measuring what's being played and then they pass back the royalty and they're saying 'You're going to have a huge issue in every country'. Again, it's back to the homogeneous market that they have in the U.S. 'You're going to have to deal with that in every country, each of the E.U. member states'. I wouldn't say it's the rock you're going to flounder on but it's another issue it brings up.

### **You can't geo-block on a satellite can you?**

Well, what you could do is silo off different parts of it so you could only broadcast to a that area. The way

a satellite's generally built is you form a beam into a certain area so that region is covered but the way our current satellite's configured is that it's got six beams so we would cover six regions of Europe but you're still going to cross border at some point and you're going to have to. Unless, you build a satellite that has twenty seven beams and even then you've got cross border because the beams, even then, well they can be, formed, pretty much to cut like the landscape, but then you need to put an awful lot of investment in to make sure the beam formed network is correct and even then there's always going to be carry over into some country. Somebody in France could listen to a radio station in Germany, you're beaming out over a German multiplex of your satellite. It's a problem and it could be overcome but again, it needs industry cooperation, it needs a push from the artists to say 'Yeah, I'm happy to do that', everything's got to be aligned.

### **Basically, it would need Europe to be treated as one territory ?**

Exactly, it needs to be federal. You might look at this and this is much of an opinion, your opinion is as valid as anybody's, as mine might be when you're talking about this. Europe, as in twenty seven member states, looks like it's federal but it completely isn't when you're dealing with it from a regulatory perspective. It's federal, fine, as it makes decisions from there but then it cuts it back to each of the home member states and each of those member states has a totally different view as to how they are going to deal with it and we found that from our licencing perspective. We have a rights use to this spectrum in each of the member states who you go to afterwards, once you've got it. By the way, these are the guys that voted for it in the first place to get it there and then the commission ran a competition, we were one of the winners. And then it basically said that now you've got to go back to each of the regulatory authorities and say what you want to do in that member state and they've got to approve it. So, we've got the rights but then you've got to go in and make sure you're paying the licence and you adhering to the conditions that they apply in each of the member states. So, looks federal but it's completely not, it's siloed.

### **Where can you go from here with what you're doing?**

We've no problem delivering to member states, other than the points that I've raised, so if we got the broadcasting authority rights and issues put to one side, they're off the table, the licence paid for in that member state and you start to deliver a satellite broadcast stream into that country, then other than the eco-system, we've got that chipset, fine. But the issue we'll always have, what is the benefit, who pays for the carriage for the satellite, who wants to be on there, effectively. If you're saying, again, go back to

someone like TodayFM, they're sitting there going 'We're on web, we're on FM, we're on DAB., now we want to be on satellite.' We turn round and say to them there's a cost for being on satellite and they'll say 'OK, what is my subscriber base?, what's it going to look like?' and you have to say to them, 'We're hoping to get it into vehicles, but that depends on whether you're willing to give us the content and then we'll build a Mux based on that content and we're going to go to a car manufacturer, for example and say to the car manufacturer 'We want you to embed this technology in your car so any listener can get satellite radio as well as DAB, as well as FM' and you know, that's a problem. That's a problem because car manufacturers are turning around to us and saying 'We want to be technology agnostic, we don't care what technology is there. We just want our consumers to be able to listen to as many pieces of content as possibly available and we don't care about the platform. From a car manufacturing perspective, they've gone back to the chipset manufacturers and mostly what they are saying now is that there is a software defined radio chip that is coming out. Software defined means that it can be defined for anything. So if you think of any digital platform out there, DAB being one of them, it functionally allows you to put all those platforms onto one chip and install that. So on that chip you'd have DAB, DAB+, you won't have FM. because it's analogue but anything that's digital will sit on that chip, satellite radio could be another one. Just a range of what's out there, they don't care how it's delivered, they just want a chip that they can embed into their car that can carry as many, or related to as many platforms as possible so their customer gets the benefit. The customer is whoever buys the car.

What are the benefits to them? The benefits are to the consumer, the consumer isn't going to pay for this service. You go back to the model, subscription, are you willing to pay for this? Are you willing to pay for some satellite radio type content but the content isn't exclusive because all we'll be doing is uplifting the stations that are currently available and sending them over a satellite Mux. The reason why were are in that position is because we're fundamentally designed by our shareholders to be a wholesaler for capacity and nothing more.

To get deeper into it, we really should be in the layer of developing our own content, vertically like XMSirius have done. And we should say, 'Look, it's expensive, it's going to be hard, but we've got to develop this content platform, that's exclusive to us that people will want to listen to'. Then it becomes exclusive to our satellite radio platform and people will be willing to listen to it and then will be willing to walk into their BMW dealership and say, 'Well, I want that satellite radio platform over there because it's got really good content, it's got the U.K. soccer rights, it's got a really cool DJ that I want to listen to, it's got TalkSport, it's got whatever'. For all those reasons, they want to be able to listen to that and that's their access, then you've got someone willing to pay for it, who is the consumer, the radio stations don't have

to pay for the carriage over the satellite because it's a subscription based service or maybe it's a mix where they pay a low fee to access the capacity but they're getting most of it through a subscription which we will then pass back to them and we'll take a portion of the subscription and pass back some to the radio broadcasters for access to the content and make sure that content is developed.

There is an ecosystem failure, from a satellite radio perspective, in Europe and it's just not an easy market and not as easy as it was in the U.S.

What is interesting is when you talk about stations in the U.K., they almost have to pay twice, they have to pay for the analogue, they have to pay for access to the digital Mux, now if we were to turn around and say 'You're going to have to pay for access to a satellite Mux', they'll be like "Ah here, forget about it'. At a certain point, it must be crippling for these guys because they are paying for distribution, the listenership might be decreasing, it is decreasing to a point, advertisers are beginning to look at other ways of advertising so their revenue, from a traditional typical business model, radio stations are struggling a little bit because they're having to drop their advertising rates and they're not recovering as much. There's this issue of having to pass back royalties to artists and all that kind of thing and they're all weighing one way and the revenue isn't going up, it's probably flat or going down. That's why when we talk about a market, this probably doesn't look like an attractive market anymore.

The technology is really interesting, don't get me wrong and radio will probably be an everlasting media because it is audio and people have ears.

If audio is on certain frequencies and certain bands and terrestrial television is moving to different bands, how we class radio and television should be redefined as in it's audio content and visual content. It's almost like the way people perceive these content streams and how they have been classed is holding people back a bit.

Well, when people listen to the radio on their mobile now, they say 'I'm listening to the radio', even though they are using an access to 3G technology to get to that web radio. People need to get away from the fact that it's 'radio', it's just an audio feed, it's music, they're listening to the content, listening to a set of content and how it is delivered, I agree with you. Traditional view, when you looked at the TV screen but now I'm looking at it on a smaller screen, how you probably intake the content is probably less relevant as long as the content is good enough. It comes back to the basic issue and you always hear this and it's a terrible soundbite but 'Content is King'. Unfortunately, it's the reality and whoever can generate

that, that's the special bit. You're a top class footballer because you've got that ability, you're a top class DJ because you have that pull and people want to listen to you because of that and people will go 'Yeah but I could be a DJ' and then they go and try to do it and nobody is listening to them and you'll sit down and say 'Define why I'm not as good a DJ as they are' and there could be a load of reasons. You're not interesting, your voice isn't nice to listen to, you don't play a great selection of music, your chat is terrible, whatever it is and you can sit there and define it but you probably couldn't put your finger on it at the time. So it goes back to this issue of content and that's the issue we're having and it will be, unless you can find exclusive content that you can listen to, then it's a problem to ask those particular radio stations who develop that content to pay for another distribution outlet when in reality they are probably only getting a few more listeners to listen to it. Their listenership may only increase by ten per cent if they broadcast over satellite.

## ***Appendix: B.12***

***Interview with Denzil Lacey of Zava Media, Internet Streaming Provider***

***Telephone Interview April 19 2012***

**What way do radio stations calculate how much bandwidth they need for their streams?**

In general it's usually unlimited bandwidth and the quality of the streams can vary, so say, for example, here in 4FM (client of Zava Media), we've got three different streams each have the capacity of five hundred people and they're three different qualities. So say you go to TuneIn and select 128 kilobytes per second, there would be five hundred slots on that so if you change to 64 there would be another 500 slots on that, if that makes sense.

**What is a slot?**

Each slot represents one person which means five hundred people are capable of tuning in at the one time on that particular stream. There's three streams that means one thousand five hundred people can tune in, technically.

**I suppose the minimum stream would be 128 and if it's speech it would be 64?**

It kinda varies with stations, some of the local stations have stupid ones, some are 64, I've even seen some that are 32 but the standard is 128. I think Newstalk even use fairly high up, even though it's just talk, it could be 96 or something. Soon, it's going to be 192 as the standard, some of the stations on iTunes are even using that now.

**Isn't 128 the minimum on iTunes?**

It is but, that's what they ask for I've seen some stations that apply for it and they are 128 but they then drop so that's how they get away with that.

**Let's say you do get fifteen hundred people listening at once, does that bring down your stream?**

There's a lot of debate on that, some people say 'does it happen?', a lot of people blame their stream dropping on that but it doesn't because what happens is, if your capacity is five hundred and you have five

hundred people listening at that time, it won't let anybody else on, it won't drop anybody off but it won't let anyone else on. It just won't let anybody else on.

**For a radio station in Ireland, would most of them be able to take fifteen hundred or what way would that work?**

I'm not one hundred percent sure but other stations, I'm pretty sure that stations like Newstalk or RTÉ would have a couple of thousand but the thing is if you sign up to a package for a thousand listeners, you don't have to stick with that, you can always upgrade by an extra five hundred to two thousand if you see your statistics if you see your listeners are increasing. So you could start off a little internet station with a hundred slots so people could listen in if you can see that you can always upgrade again. Most of these packages from different companies will allow for that, you can just upgrade on your current package.

**From looking at some radio forums they always seem to go with American packages, so do you just push your stream to their site?**

The way it works is, if you buy off a streaming company or myself, generally the rule is (Denzil asked me not to quote him here as this is legal information and he didn't have the correct terminology to hand but mentioned that depending where your host server is you may/may not be liable for royalties depending on that country's law). It's a bit of a grey area and there are no right or wrong and there are no set guidelines for that.

Generally, there's a server in a particular country and your computer with the music you're playing is streaming to that server in America and that's what you're hearing so actually technically what you are hearing is from America or whatever country the server is in.

**Most of these packages, start from even ten dollars a month but one of the things people have been concerned about is the cost of bandwidth, why would they be worried about it when it seems to cost so little?**

Some of these companies that offer them for like, five quid, there's always, terms and conditions, you have a certain amount of bandwidth, some of them can be low, basically if you go for a package of one thousand listeners and you've got low bandwidth that means they are eating into the bandwidth. The more listeners you have the quicker the bandwidth they're going to use but most packages these days are



unlimited so you're only going to worry about how many listeners you are restricted to.

**So for someone like 4FM, do they have their own server or do they hand over their stream to someone else?**

In all the radio stations, I've worked with and I'm sure it's the same for all the big stations too, it's outsourced to, the main company in Ireland is called VistaTec, but they provide it for them. When you go onto a website, you don't know who is hosting it for them it just looks like it's ours but nine times out of ten, it's an external company.

*Appendix: B.13*

*Interview with Lisa Ní Choisdealbha, Independent Broadcasters of Ireland*

*Telephone interview: April 19<sup>th</sup> 2012*

**What is your role within the IBI?**

Well, I am officially the Development Director but there's no one else working full time within the IBI besides myself so I develop everything from policy documents, from responses to consultation documents to lobbying efforts, from board meetings to conferences to developing initiatives, anything that has to be done, I do it.

**That's a lot of work..**

Yeah and as time goes on, when I started in 2007, I came from the BCI so I knew the industry, I knew the people involved so that was a great help but because there was no one in the role before me it was creating the role and the first year or two was trying to build up things. Stakeholder meetings, giving the members the chance to meet the regulator and ComReg and that kind of craic and things like conferences. As more time goes on, more things come down the pipeline but you still have to keep up with what you started doing when there was nothing else to do. So, it's all snowballed, every year there is more to do but it's a great industry to work for. I mean, it's so vibrant and the best part about it is that everyone who works in radio seems to have a huge love for it. So you feed off that to a certain extent, there's no one counting down the days to their next holiday or counting down the days to retirement or anything like that and that is good to see.

**You had a conference early this month and I noticed that digital radio wasn't on the agenda. Where do you guys stand on digital radio, is it still a big leap for your members to take ?**

It's been a very hot topic over the last couple of years and there are two schools of thought on it within our membership. One is, we don't have the money to invest in digital radio and if you can't do a proper job on digital radio there's no point in doing a half assed job on it. A lot of the independent sector know that digital radio is not going to take off properly in Ireland unless all of the stations are available on it and because of that they know that they have the trump card, they can afford to stand back and see how the whole thing pans out. There's no problem with FM, there's no body running to get rid of it, it's not like television where it's going to be shut off at a certain date, we're always going to have FM radio so there's

no mad rush to get off it to move to something else that they really can't see a massive calling for. Willie O'Reilly when he was our Chair had a great quote which was 'Digital radio is never going to be all that big or all that huge an issue in Ireland until car manufacturers start putting them into cars without it being requested.' So, until it's standardized as an apparatus, the digital radio receiver itself, then none of the commercial radio stations are going to be jumping out of their skins to get themselves on digital. So that's one side of it.

The other side of it then are people who are slightly fearful of what RTÉ are doing and they think that because RTÉ have developed digital radio so much that they are stealing a march. Some of the stations would be afraid that when or if digital radio becomes a full time reality that RTÉ would be so far ahead with what they have done on digital, that the independent sector just won't be able to catch up. It became a huge issue for us when the Broadcasting Act (2009) was going through the Dáil because at people thought there still was going to be analogue switch off and that you would have no option but to go digital, which is why we lobbied to get the increase in commercial licences included in the act. Which is, if you invest in digital radio, you will get an increase of up to six years on your commercial licence, there's nobody even pushing for that now because no body knows what the apparatus that they use is going to be. Is it going to be DAB? Is it going to be DAB+ is it going to be DRM? And there's so much confusion over it that people are happy to sit back and say 'Look, we'll wait til everything pans out, we'll wait til there's a little bit more cash there that we can actually invest and more importantly there's a demand coming from the audience' and that would have impact on what they're doing, then they're quite happy to jump.

**When you say that some of your members are fearful of RTÉ, is it just the fact that they have stations up and running already?**

Yes, that's exactly it. There's some of them that would think, we'll they're up there, they're starting to market it, they're starting to advertise their stations, some people know about it and if they're there well we should be too.

**I should be upfront with you, I have a show on RTÉ 2XM but that's it, I don't have any affiliations with RTÉ in any way.**

That's fine, we work quite closely with RTÉ on various projects, we have a radio gauge project on at the moment we choose radio with them, we work quite closely with them so an awful lot of them would

know what our stance is on digital so I have no qualms about that part even being included because it's not like we haven't said it to them before. And even when the digital trial took place a couple of years ago, it was RTÉ that initiated it but it was done as a joint trial with the commercial sector. Even the RTÉ guys realize that the whole thing isn't going to be a full real runner until the commercial stations are on it, so I guess that's the dilemma for the commercial sector, while they don't like to see RTÉ taking the lead on the something that the commercial sector really cannot do something about they also know that digital radio is never going to really take off until they're on it so that gives them a certain amount of power. The other frustrating thing is that even if the commercial sector in the morning, got a windfall, they won the lotto or and decided that they were going to go on digital, they can't because they set up isn't there from the regulator for the commercial sector to get involved. There is no digital policy, there is no clear indicator of how the act is going to be imposed as in what does 'Investment in digital' actually involve for the stations. The commercial stations are actually so far down the road in getting up and running in digital and there's so many loops that have to be jumped before they can have an opportunity to go digital and the amount of time that is going to take is going to be massive so that's the other part of the reason why they're not pushing too hard because there is only so much they can push themselves. Then there's so much to be done by the BAI and I suppose they're not in a position to be putting pressure on the BAI pushing digital to the top of their list.

**And if you're pushing the BAI you still have to think of your own interests and your the licence and everything else..**

Completely.. no body know how it's going to be. There's two sides to it I suppose, there's the operators and then there's the content providers. No one knows who the operators are going to be, there's no guarantee that every radio station broadcasting in the country is going to have carriage on the digital platform and you have no idea what the rent is going to be? When you were saying digital wasn't on our agenda at this year's conference, about two years ago we had a guy called Nick Piggot who works for Global Radio in the U.K. He came over to talk about what they had done in the U.K. This was the time when the Broadcasting Act was going through the Dáil and people were saying to me 'Oh in the U.K., they got twelve year of a rollover on their licence once they got involved, or once they started broadcasting in digital'. So, we brought over Nick Piggot and he said what they did in the U.K. was the worse case scenario, he said 'Whatever you do, don't follow our lead' because it cost them so much money for them to get up on the transmitter and there was no one listening to it. So they put a huge amount of money in for no return.

**Also from the guys, I was speaking to in the U.K., they felt that to be legitimized as a radio station they felt had to be on DAB, even though they had listenership online, for advertisers and that, they had to go on DAB.**

Yeah but that's an awful lot of, kind of pie in the sky because there's no proof of how many people are listening to DAB. first off, you might have a DAB radio and you might never use it you might still be tuned into FM so even the percentage that come out of the JNLR for the percentage of people who listen to DAB is a little bit iffy, to my mind. But there is this notion that because online is so popular with advertisers, then if you're not on DAB then you are missing out on something, but you had nothing extra to offer, all you're offering is on FM and the advertisers are like 'sure you've been on FM for the last twenty years, there's nothing new about that'. But there's no point in saying I'm on DAB, if you can't actually say how many people are listening to you or if you say I'm on DAB and there's ten thousand DAB radios sold in Ireland in the last three years in Ireland, that's pittance.

A lot of it is this notion that if you're not there, then you are missing out on something but there's no proof that you're actually gaining anything by being on it.

**It seems that you would have your FM costs and you would have DAB Mux costs you don't get anything extra back in return.**

No and the other side of it then is that you would have more space for more stations which means you would be able to provide more niche stations which is exactly what RTÉ are doing and that costs money too. It's extra facilities, it's extra people, it's extra extra extra and there's no guarantee that you will get back extra revenue from advertising that you put into it. So there seems to be negatives and very little positives on the whole digital aspect.

**You would have a good variation of stations that would be your members, there's a lot of choice to what people can listen to anyway, if DAB can introduce more choice, what exactly are people going to get?**

Well I suppose there are two schools of thought on that. The first, if DAB was introduced and you were in, say you were in Mayo and you were listening to pop music at night but you knew that half your audience was over fifty and they weren't into pop music, then on your DAB station you could put on the country and western music that they were listening to and all of a sudden you keep all of your audience

instead of potentially losing half of it.

The other school of thought was for a group like the UTV radio stations, if they were on DAB, they could bring something like TalkSport over to Ireland, because they own it and all of a sudden you have a station opened up to the Irish public that they didn't have before and is costing them next to nothing to transmit because it's there.

### **They already have the content?**

Yeah, but you are right there is a massive amount of choice there and I know diversity for an audience is one of the BAI main focuses when they are looking at a licences but at a certain point you have to ask 'how much diversity can you actually offer or how much diversity do people actually want'. There's a great anecdote that when they were looking for new licences, or whether they were going to licence new operators, way back in 2002/2003 and people were saying 'Do you think there should be a jazz station in Dublin?', you couldn't knock it 'Sure, there should be a jazz station in Dublin'. Then the next question was 'Would you listen to it?', 'No, probably not!'. So there's one thing saying you should have all this choice but there's no point in having all the choice if people aren't going to listen to all the choices that are there. Then, all you are doing from a commercial point of view, when the commercial stations are so focused and have to be so focused on advertising and advertising rates are so focused on listenership numbers by offering the listeners, ten different, let's say within the FM104 group of stations, all you're doing is diluting the amount of revenue you can bring in for advertising and the only person you are hurting in the end of the day is yourself. So there's an awful lot to be weighed up on it, a huge amount comes back to the commercial viability of the whole thing but there's an awful lot of legislation and an awful lot of consultation to be done as well from the regulators point of view. The regulator doesn't seem to have any appetite to be pushing it or to be developing it, the commercial sector aren't pushing them to have that appetite, I think the only ones, I know RTÉ have it done and dusted as much as they can or as much as they are at the moment apart from that the only other ones I can see that are trying to get inroads into it or trying to get it up and running is Dusty Rhodes.

### **Have any of your members said that they are going to take part in the trials that are happening in June?**

No, not that I know of. When Dusty sent out the letter to the list of chosen stations that he had, I think part of the conversation I had with a couple of them were that it was very expensive, there was nothing to

be gained from being on the trial and because licence applications are coming up for renewal in the next year or two, they didn't want to get involved in something that they could be potentially looking for in five or six years time to give them six years extra on their licence. I think they have enough on their plate at the moment to be putting money into something that's not going to get them anything in return.

**Do you think that there's a chance that that trial may not go ahead and I'll be totally honest with you why, I sent a couple of questions to ComReg and one of things I was asking about was this trial licence and if there's a limit on how many trials that can take place and whatever.. and they said oh we've nothing in for a DAB trial..**

Oh, that's interesting

**I know that if you have everything in place that they can turn an application around in about two weeks once you have your application in but someone wouldn't be that stupid to go ahead and publicize it saying we're doing it and then not have the paperwork done, would they?**

You would hope not! I know he has a lot of the background work done because it is multi-city trial which he has done before with Raidió RíRá which is an online radio station run through Irish and he did that multi-city for Conradh na Gaeilge for two or three years I think and it was Joe King, who's his business partner in this digital venture, it was him that did the transmission for that so I think they've a lot of the leg work is done. Now, I would have assumed that he would have applied for a licence from ComReg, that said there is no point in having a licence if no one is going to pay to be on it.

**No matter what it is, even if it's a trial or not, you're still going to have pay some contribution to ComReg.**

Oh, completely. ComReg have no hassles giving out licences and they have said that to us before, that they would hand anybody a licence for a digital trial once you were proving that you were doing something additional than to what has been done before.

**They said the only ones other than DAB, that they had were the trial for DRM that RTÉ did a few years ago but no body has ever even talked about HD Radio even.**

And that's the other interesting thing, we're so focused on DAB because that's what the U.K. has and

technology is moving so so fast that you wonder in two or three years time, will we even be looking at DAB? I mean, if you have every station in the world available to you on your iPhone or your iPad or on your laptop, why would you bother going out a buying a DAB radio? To get three or four niche stations that nine times out of ten are going to be available online anyway.

**That brings up another point, if you have everyone that's going to listen online because there's better buffering with 4G technology that the bandwidth and broadband costs for the stations is going to go up. Have that spoken about that or how it would effect them?**

No, at the moment the amount of online listening done to radio stations in Ireland is very very small and the majority of it is actually from overseas. So people from Tipp. or from Kilkenny or wherever who are living in Australia and America or all over Europe or wherever are tuning into their local station online. The amount of online listening done in Ireland is very very small. The stations can make any money from their online at all, even from some extra advertising which tells you how little number of people are tuning in.

**I think what needs to be done is a study on the whole market and what people want, there's a lot of new technologies but a lot of it seems to have been forced upon people and forced upon the broadcasters but at the end of the day you have to fall back on what your listeners want and what your audience wants.**

Yeah but do you not think that in some way by letting the market choose in the way they are at the moment that you are actually finding out what they want. I mea, if you were to take Dublin as your test and you were to go out and ask everyone in Dublin, like JNLR does, or a sample, if you were to ask them in Dublin, what do you want? Sure they're going to give you the sun, moon and stars of what they want but they're still going to go back and listen to their FM radio. If you look at it at the moment, there's eighty five percent of people listening to radio on a daily basis and regardless of how many stations are available to them from abroad or online or whatever, the majority of people are still tuning into the Dublin based radio stations, or their own local radio station, so to an extent that is the market determining what it wants, like voting with their feet, telling you what they have chosen.

**The Australian way of how they introduced DAB is very interesting.**

When Nick Piggot was over with us, he was saying if you want a test case of how to do things perfect,



Australia is that test case. They took what the English had done with the roll out of DAB and they saw the mistakes and eliminated the mistakes, they took the good bits and left the bad bits.

And what Nick reckons was that they had the perfect system set up. I think the switch off of FM in Australia will be quite easy for them because no more than television here, you won't have an option but to do digital television because there won't be anything else there.

**After my research, I don't think FM will be switched off here.**

No, I don't think so either, there's no plans for it, there's no one looking for it and there's nothing wrong with FM. That's the other thing about it, why would you turn it off when nobody has any problems with it. Digital TV is a small bit different, it's being switched off all across Europe so Ireland had no choice but to jump on the bandwagon, when there is nothing wrong with FM and no body has any complaints about it?

**And you can't do anything else with FM, all that would happen is that you would hear more ambulances and air traffic control?**

Yeah that's it but the other point about it is, it's one point to think what the broadcasters and what's in legislation but if you think of the practicalities of introducing DAB only radio into Ireland, the average person has six/seven radios in their house from their clock radio beside their bed, a radio in the kitchen, a radio in the shower, a radio in the sitting room and the auld stereo sitting in the corner, the car radio, the radio in the office at work.. to try and change all of those because F.M. is gone and all of a sudden it's DAB To have to switch all of those to a DAB radio would be a nightmare, cost wise, hassle and everything and the impact or potential impact that cost have on listenership would be massive. Take me for example, the first thing is the alarm goes off at seven o'clock in the morning and the first thing I do is put on the radio, the clock radio beside the bed and then get up come down to the kitchen and turn on the kitchen radio. Then, get into the car, it's the car radio and into the office and it's the office radio all day. If that was gone in the morning, there's no way I'd go out and buy six DAB radios to change them all on that so if I'm JNLRs on that, I'm gone from listening to radio from seven o'clock in the morning to seven o'clock in the evening to maybe just listening to it from half eight to nine in the morning when I'm in the kitchen because that's the only DAB radio that I have.

The implication to that and purely looking at it from a consumer point of view, it's one thing buying one television to get the digital but nobody is going to go out and buy six or seven radio sets in one swoop to replace all the radio sets they have in their house.

**I now use my iPad to listen to radio instead of a stereo, I just bring the iPad around with me. But as you say in two or three years, we don't know what new technology we will be talking about.**

It's one thing saying, for you or for me, or whatever, or people involved in the radio industry, it's fine but when I think of my parents or grandparents, they're not going to go out and be getting DAB radio or be trying to tune in different stations so they can hear the death notices on Shannonside/Northern Sound or whatever. There's the whole technology change but how that impacts on different people's lives and if you would be inconveniencing or taking away people's diversity and you think you're actually adding to it. There's a whole dose of issues and questions and stuff that you don't actually think of when you're looking at whether stations can afford it or legislation is in place or if you can get what you want commercially if you invest in digital. There's a whole load of things we never think about from a practicality point of view until it actually comes to pass.

We were at the Department a year ago and we were talking about digital TV and the introduction of digital TV and they were actually saying that the hardest people to get the information out to is the older people who live mostly along the west coast of Ireland. They were saying that the only way to get to those people is local radio, advertising and discussion of digital television on local radio. I was like, that makes no sense, you're trying to, sorry getting the message to them through local radio makes sense but you're trying to sell a new technology to older people and the only way to do it is to go back to one of the older forms of technology, in a way it's kinda warped. If you were trying to sell them DAB or DAB+ or DRM or online or whatever the next route is going to be, trying to get that message out is a nightmare.

*Appendix: B. 14*

*Interview with Simon Young, Presenter of The Beat Box*

*Telephone Interview April 27 2012*

**You were a presenter on The Beat Box?**

Yeah, I think it was for about three years. We came on air for the Beat Box at 11.30. I was in a TV studio, I wasn't in a radio studio. It was basically the news studio, the SixOne studio, we took it over. It came from the TV studio, back to the radio centre. It was a simulcast, which they couldn't get right at the time. It would be easier to correct now with digital. The one thing that never matched up was the duration of the commercial breaks because your allowance for commercial breaks is different on radio than to the allowance for commercial breaks on television. One was thirteen and one was eleven or twelve. Mike Ryan, Gerry's brother was back at base and he would fire jingles and adverts, just pressing the cart machine.

**When you were in the studio, you were obviously talking to the camera, did you present as a radio show or as a television show?**

It was a very difficult one to do, as a radio person, first and foremost, I was very aware of the radio audience who would be listening in, who could hear us at times waxing lyrical about a video they hadn't seen. So, we had to be careful there, chatting about a video, a great video or whatever the case might be. The dynamics were different, the dynamics of radio and TV are totally different.

**I know if you're presenting on TV, the gallery will tell you 'OK, you've got three seconds, five seconds'. Obviously, videos were fired off from the gallery, were you told to introduce the song like it was radio or was that television?**

There was intellectual conflict between the radio producer and the television producer. The radio producer would be sitting in the TV studio with talkback to the radio centre. When he knew we were going to a commercial break, he would have an open line to Mike back in the radio building and would wait for the count from the floor manager. He'd count that in. It didn't always work out perfectly but it was an ideal time for us to put in, if the commercial break on radio was only two minutes long and the television was three twenty five, we'd always stick in radio promos.

**What kind of feedback did you get can you remember, where the most come from ?**

TV. Huge, massive on TV, it was the next thing to come after MTUSA, really, on TV, there were several programmes in-between mail wise, viewership wise. Where would you get it only in Ireland. First you had 'Little House on The Prairie', Mass after it, that was your choice between RTE one and Network 2. There was nothing else on and we had access to a huge amount of artists and we gave a lot of attention to Irish artists, we had to have twenty five percent homegrown output.

It was a tough one to do and all the jocks knew it, one producer was trying to look after the radio end of things, the TV producer was trying to make it look like a TV show, the radio producer was trying to make it sound like a radio show so we we're trying to be all things to everyone. At one point, I remember asking if we could have a foot pedal under neath the desk so we could cue the video ourselves, so we wouldn't have to have a count in, like a foot pedal for a sewing machine almost that we could trigger. I asked if we could get that to cue in, I think we got that about three months before I finished doing it.

**So you could cue your own music in?**

You could cue the music in, yeah. It was just trying to tighten things up, it was more control over the radio element. We were radio people.

## Appendix C

### Radio Station Case Studies

#### ***Appendix C.1 BuzzRadio.fm***

BuzzRadio.fm is branded as a 'Northern Ireland's Number One WiFi Station'. Set up as a hobby station in 2009 by Greg Parke, playing music from 2000 - until the present day. (Appendix B.6) At that time, the only way to listen to the station was directly from its website. It was not until 2010 when founder, Parke, heard about WiFi radio receivers. 'I heard about these new WiFi radios, a bit like the old Shortwave radios except they receive internet stations only via your wireless router. So I was like 'How do we get onto these things?'

This was then the start of a long process of getting in touch with receiver manufactures and websites like TuneIn.com and WunderRadio.com, 'who specialise only in listing internet stations', so Buzz could be registered. Parke also found out that while having to get in touch with some manufacturers directly, some manufacturers took their data from websites like WunderRadio and installed it on their WiFi Radios. After this, Buzz experienced a rise in listeners, 'the listenership went up, seriously, like two/three hundred percent'

The next step happened when phone apps started to be made for these internet radio listings sites. It became the goal of Buzz Radio to get itself on 'free global apps'. This 'had the biggest effect' for the station as 'we reached a point in, I think, July of last year (2011), we were actually getting more listeners in a day than from any given month of the previous year.' These apps included those for iPhone, Android and Blackberry platforms. The process is still ongoing as Parke now looks at apps in each separate country, 'it's really about saturation of the station, about trying to get it on as many smartphones across the world as possible.'

BuzzRadio.fm now has a 'about one hundred and sixty thousand listeners every week.' Parke is also not afraid to let listeners and competitors know about his station's reach, 'usually seventy to seventy five countries a month.' as he regularly posts these updates on Buzz Radios Facebook Group ([www.facebook.com](http://www.facebook.com))

With IP based radio, internet statistics cannot be changed or altered. This means with IP based radio the

amount of listeners to a single station is fact and not a sample population figure questioned for a JNLR (Joint National Listeners Research) or RAJAR (Radio Joint Audience Listenership Survey – UK) survey.

'If you listen to a computer, if you use a WiFi or internet radio or even a smartphone, that still has to go through the server so it registers. So, our figures are fact, they cannot be doctored one way or the other and again too the beauty of this technology is by using things like geostats, we can via peoples IP addresses, we can tell exactly where people are listening, how long they are listening for and so on.' (Appendix B.6)

Mr. Parke is very conscious of the costs of WiFi/IP based radio in comparison to other digital forms of broadcasting, especially DAB. In Northern Ireland, where Buzz is based, DAB radio would cost a broadcaster' about fifty thousand pounds a year, that's just to be on the multiplex system'.

'The other thing, I don't like about DAB is that you're still going to the extent of putting up new masts, new transmitters, blah blah. BuzzFM doesn't have to worry about transmitters, we don't need a transmitter, all we need is the server in London.' (Appendix B.6)

During the course of this study, broadband and bandwidth costs have arisen with some broadcasters. With a listenership of one hundred and sixty thousand weekly, does that mean Buzz's actual internet charges are high? Parke addresses this by saying, 'It depends on what company you're with'. The Scottish company Buzz Radio deal with actually have their servers in London and have 'about two hundred and fifty stations going through their servers. I think their profit is in volume of customers as opposed charging any other way.'

As Buzz is an IP based station, this obviously means that the internet is their only transmission method and so it should be their highest outlay. The high bandwidth cost associated with streaming doesn't exist for Buzz Radio.

'For Buzz to stream around the world as it does and to all smartphones, it's only costing me about twenty quid a month. We're twenty four hours a day, seven days a week and our expenses only goes up if there are too many listeners on one server so another server has to kick in to accommodate the

traffic, that's obviously when our bandwidth becomes much bigger, we have to pay more.' (Appendix B.6)

As a station grows and develops though, advertising and revenue becomes a factor, Buzz doesn't have to try and legitimise itself to advertisers through their online listenership figures.

'The reason why is because we always present that to them and I suppose when you include that with your package they have no reason to ask because it's there and they can mull over it. I suppose it would be interesting to see if we took it out how many would ask.'(Appendix B.6)

Parke thinks one of the reasons that DAB maybe pushed instead of WiFi is because 'governments in the west' have the ability to make money from the licence fees.

'You can't police the internet therefore you can't police WiFi radio. You can't decide who gets a licence or who doesn't get a licence for WiFi radio, you can't but you can with DAB, so there's money to be made in it and once there's money to be made in it, governments are interested.' (Appendix B.6)

The roll out of 4G is important to Parke and he references what Steve Jobs, of Apple, said before his death, 'what we have achieved is speed, we don't need things to move faster because if had an even faster connection online, we actually wouldn't really notice any difference.' What Parke seems excited about is the convergence of different technologies onto one device and how 'technology will be designed more around us, our lifestyles our living...It's not just about radio to a handset, it's about television, it's about even making Skype calls', all made possible by 4G technology which gives the user the same speed of internet on a mobile device that is currently experienced on home broadband.

Park estimates that currently 'sixty to seventy five percent' of Buzz listenership comes from mobile phones at the moment. However RAJAR states that:

'cookies can normally only be used on a device with a web browser, like a computer. Some devices, like internet radios and mobile apps, can't set a cookie at all, so online measurement can't reliably count unique listeners in these cases'. ([www.rajar.co.uk](http://www.rajar.co.uk))

Buzz Radio currently has 'the guts of twenty people' working voluntarily and Parke would like the Buzz brand to expand in the future by having 'different branches or sister stations'. What Parke describes would be relatively cheap to set up, as it would be 'virtual', no studios, no presenters, just a ghost station playing music.

'I got a pretty big shock there last year from discovering a radio station, I think it might have been on TuneIn Radio and this radio station had something like fifty different radio stations under the same brand. I can't remember the name of it so for examples sake let's call it ABC. There was ABC1, ABC2, ABC3 but instead of numbering it that way what they did was number it per year, so there was an ABC1973, the year I was born. What they did was put virtual radio stations into the server and each station played music only from year, so whatever year you were born you could listen to that year and nothing else. That surprised me as these were virtual stations, they're not real, there's no body there, it's one server carrying any number of stations. That too, is interesting thought to see how technology has developed that way. That's something I would like to look into more.' (Appendix B.6)



## *Appendix C.2 Amazing Radio*

In 2007 an online marketplace for new and emerging acts, AmazingTunes.com was created. The initial idea was that 'we needed a differentiator that would make AmazingTunes.com different from and special from some of the direct competitors to it, such as Bandcamp and Soundcloud', according to Managing Director of Amazing Radio, Paul Campbell (Appendix B.5)

Amazing Radio (amazingradio.co.uk) used the romanticism associated with radio to win over new and emerging acts. Campbell said, 'musicians love to be on the radio, especially new and emerging musicians, who've never been on the radio before. It's a moment you remember the whole of your life when you first hear a song you've played on, played on the radio.'

As the founder, Campbell then took the idea one step further. Looking at the demise of the music industry and the 'old model', where a musical act would get radio exposure and then a consumer would go buy it. 'In the digital age there was no logical reason why that would completely stop', he explains. As a former producer with the BBC, Campbell was also aware of advertising costs versus the cost of making actual audio programming. 'It's cheaper to make a programme than it is to make a thirty second ad and you can quite often get it broadcast for nothing and you get longer touch points and more brand loyalty that you would with a thirty second ad.' So, Amazing Radio became a marketing tool for everything the brand do

Amazing Radio was then launched in 2009, solely sourcing all its music from its sister website Amazing Tunes. The quickest way to get national exposure was to use DAB, as there are no FM national licences available in the UK and regional licences only are 'proportionately not worth the money'. This broadcast method is expensive though and was the main problem that Amazing had. 'It costs, many hundreds of thousands of pounds to broadcast, I'm not allowed to tell you exactly how much, a very very large amount of money.' The brand has been funded by forty investors who have contributed 'five thousand pounds and a million quid each.'

Within five days of receiving their Ofcom (British Licence Regulators) licence, the station was on air. A three hour audio loop was sent to the multiplex site and Amazing Radio was broadcasting, from a flash drive. Acknowledging that this wasn't 'proper professional radio made by people in glass buildings', station audio imaging was lo-fi but Campbell maintains that was 'something from the ground up that's trying to help new talent and therefore we wanted to have a very democratic feel to it from the very beginning.'

A lack of advertising funds meant 'people found it by accident, they never heard about it because we never told them about it' but the station's audience grew due to their non traditional approach to making radio. Amazing Radio is a commercial radio station, however you won't hear advertisements. This had led to a much more relaxing radio listening experience.

A third site was introduced to the Amazing family, Amazing Instore, a B2B venture and this is how the venture is now financed. The model 'takes advantage of the fact that the overwhelming majority of music in our database is from musicians who are not registered with the Performing Rights Society or any other copyright collection agency.' Amazing now employ ten sales staff in the U.K. who ask businesses if they are paying for a PRS (Performance Rights Society) licence to play music in their stores. They then offer them new and emerging music at a cheaper rate. They licence the music to stores, 'we then pay the musicians for playing their music in the shops and the difference pays for the running costs of the entire business.'

Including the ten sales staff, the company now employ twenty eight staff, which also include five web designers who have pushed the Amazing brand even further. An American arm of the radio station, AmazingRadio.com was launched in February 2012. Online listening and apps, means that Amazing Radio has global penetration but 'we should make it convenient to listen in America because it's such a huge market and if we could find a way to break in America, then we become a seriously important and valuable business.'

A 'timeshift' player was introduced on the station's homepage, enabling 'as realtime listening', which means you can hear the UK 'breakfast show at breakfast time in California'. Using software developed by the team, which 'basically output the UK content onto a giant stick of RAM and then we can dip in every five, six, seven or eight hours to fish it out again and that gives us the four different timezones.' This technology has also enabled 'Instant Rewind' on the station, which Campbell believes is a global first,

'mainly for licencing reasons actually, mainly because of their terms with the record labels, they would have to pay more money each time someone rewound and replayed but because of our licencing we don't.' (Appendix B.5)

AmazingRadio don't know exactly how many listeners they have on DAB in the UK, they refuse to pay to be included in the RAJARs (Radio Audience Joint Research survey),

'they charge fifty grand a year and it's woefully inaccurate.... If you use the same proportion of online listening compared to over the air listening, that applies to RAJAR stations, we have probably six hundred thousand reach, in the U.K. on DAB.' (Appendix B.5)

Already the US market is a valuable part of the Amazing brand, but Campbell still says that 'proper radio' is important and plans to launch 'some radio stations of our own that actually are on the radio, in the States as well, which will be kind of opt outs of the U.K. output initially'. These will start with the current UK output, leading to stations in Boston, New York or L.A. opting out of the UK broadcast, then 'they'll progressively build up to more and more twenty four seven stations of their own.'

### *Appendix C.3: Gaydar Radio*

Based in London, Gaydar radio evolved from an online gay dating site set up in 1999. Robin Crowley, Programme Controller for Gaydar Radio said, ' At the time, it was just a jukebox, propped up in a bedroom on a table and it was propped up by a travel book and it played music to the guys when they were online' (Appendix B.3).

Gaydar Radio is owned by Qsoft,

'a technology company with a portfolio of multi-platform brands. These include gaydar.co.uk and its related URLs, gaydargirls.com, gaydarradio.com and gaydarnation.com. The station is multi-award winning having received BT Digital Station of the Year 2006, Sony Digital Station of the Year 2007 and Arqiva Digital Station of the Year 2007 & 2008.' (qsoft.co.uk)

In 2003, what had grown from a streaming music to an internet station amalgamated with Purple Radio and continued operating as Gaydar Radio. This take over of Purple Radio, led Gaydar to take over Purple's position on the London multiplex. They later acquired a position on a multiplex in Brighton. The station now operates 'ninety four hours a week' live programming, fifteen hours live programming each weekday. Weekends are pre-recorded except for 'Club Nation', a live show on Saturday nights.

Having carriage on two DAB multiplexes means the costs are high even though 'seventy five per cent of our audience within the UK is online.' Crowley states that

'the thing about having DAB, especially in London and Brighton in those two urban conurbations is that audience within those two locations are listening via DAB, so .. it is worthwhile for us to keep those multiplexes.' (Appendix A.3)

The Gaydar Radio team are aware of the benefits of IP radio and know that with the advent of 4G, it could be a cheaper way for small niche stations to begin broadcasting.

'The only problem about it is legitimization within the (advertising) agency houses... If we weren't on DAB we wouldn't be considered legitimate, we'd be considered, 'just' an online radio station.' because the FM spectrum is filled

up, it is, sort of, a closed shop almost between the advertisers and the FM licence holders and that needs to be looked at and needs to be addressed.'  
(Appendix B.3)

One way to overcome this, is to market, advertise and cross pollinate within the Gaydar network of websites. The original creation of an online dating site has given QSoft an advantage, as radio stations had

'been looking at ways to create these social networks and we came from the completely opposite direction. We came from the direction of we were a social network first and then we created this radio station that grew, very very slowly and organically over a long period of time.' (Appendix B.3)

On March 8 2012, according to The Guardian, QSoft was seeking a "significant cash investment" and a possible sale of the company that could see it valued at £10m.' As, 'The company is said to be keen to expand its global presence, with a particular focus on Australia and South America'. Simon Bullivant, of Ashcombe Advisers, who are assisting QSoft, was quoted as saying "Having created the world's pre-eminent gay brand, the company recognises that further investment and management expertise is required to fulfil the true commercial potential and demand that is being experienced throughout the international and emerging markets."

Gaydar radio no longer subscribe to RAJAR (Radio Audience Joint Research Limited) but claimed 'GaydarRadio is the largest gay & lesbian station in the world, with over 2.2 million unique listeners every month (Source: RAJAR/ABCe, May 2009).' (qsoft.co.uk)


## Appendix D: Images

### *Appendix D.1: Sunday Business Post: Screenshot Online Paid Edition*

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# Digital trial to give radio listeners added choice

02:55, 11 March 2012 by Siobhán Brett



Dusty Rhodes, director and co-founder of DB Digital Broadcasting.

**Radio audiences in Dublin, Cork, Limerick and Galway will have twice as many stations available to them this summer, as a result of a new digital audio broadcasting (DAB) radio trial.**

The trial, which will be launched in June, will provide listeners in the four counties with a cluster of new digital radio stations broadcasting on DAB for the first time. The stations are part of a new DAB trial being operated by DB Digital Broadcasting, the Dublin-based independent network transmission provider.

"Our goal is for DAB to bring 30 brand-new radio stations to every single home and workplace in the country," said Dusty Rhodes, director and co-founder of DB Digital Broadcasting. "Currently, most people in Ireland are limited to just eight."

The beauty of DAB was its simplicity, said Rhodes. "Like an FM radio, you just push the DAB button and select what you want to hear," he said.

"Unlike the internet, it's completely free, there's no broadband bill or complicated setup," he said.

"It's a better experience than FM, because there is more choice and the screen on the radio provides visual information, which FM just cannot do."

As well as that, FM will never deliver what advertisers demand most - more targeted and trackable advertising. Rhodes said that one of the key goals of the trial was to show how massively data services could improve radio for listeners and advertisers.

DAB, which allows increased capacity at a fraction of FM broadcasting costs, allows broadcasters to operate targeted sub-brands of their main stations. Advertiser images can also be broadcast along with audio ads and listener interaction can be tracked.

The new stations will include 1980s, 1990s and dance music stations, a news service and an Irish language youth station.

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(businesspost.ie)



<b>Theme:</b>	<b>Ensuring Diversity</b>
<b>Strategic Goal:</b>	<b>Providing a diverse range of broadcasting services and content</b>

No.	Strategic Objective	Key Deliverables	Timeline 2011	Timeline 2012	Timeline 2013
2.1	Ensure a diverse range of broadcasting services that best meets the needs of the people of Ireland and the presence of content and programming that represents and reflects the diversity within Irish society.	2.1.1 A Broadcasting Services Strategy is developed and published which includes consideration of the feasibility and desirability of digital radio broadcasting	✓		✓
2.1		2.1.2 A licensing plan for commercial and community FM Radio services is developed and implemented	✓	✓	✓
2.1		2.1.3 The establishment of new digital content services is facilitated and supported through the timely processing of applications and contracts	✓	✓	✓
2.1		2.1.4 The establishment of temporary and institutional services is facilitated and supported through the timely processing of applications and contracts	✓	✓	✓
2.1		2.1.5 The BAI will participate in national and international Spectrum Planning and Technology fora, as appropriate, to ensure a positive environment for the development of broadcasting services in Ireland	✓	✓	✓



No.	Strategic Objective	Key Deliverables	Timeline 2011	Timeline 2012	Timeline 2013
2.2	Develop and implement schemes to support the production of high quality programmes that add to the diversity of programming available to audiences in the state.	2.2.1 Programme production will be supported through the effective implementation of the Sound and Vision II Scheme	✓	✓	✓
2.2		2.2.2 Agree the scope of, and undertake, a statutory review of Sound and Vision II to assess its impact and effectiveness, with the aim of presenting proposals for an enhanced and improved scheme to the Minister		✓	✓
2.3	Examine the desirability of, and potential for, digital sound broadcasting.	2.3.1 Develop and publish a policy in relation to Digital Radio in Ireland covering both multiplexes and sound broadcasting licensing			✓
2.3		2.3.2 Engage with other agencies in the required spectrum planning activities to support the implementation of a digital radio policy	✓	✓	✓
2.4	Continue to advocate for the commercial take-up of digital terrestrial television (DTT), so as to provide Irish audiences with more choice in broadcasting content.	2.4.1 Review the possibility for commercial DTT and communicate views to the Minister	✓	✓	
2.4		2.4.2 Engage with other agencies in the required spectrum planning activities to support the implementation of commercial DTT	✓	✓	✓



TABLE 509

Listening Activity - past month

JNLR/Ipsos MRII - 2010/4 - Data 2010Espril Ltd.

	SEX				STATUS				AGE										SUMMARY				
	MALE		FEMALE		HOUSE -KEEPER	H/R +DEP	MARR /MID	SINGLE	WORKING WOMEN														
	TOTAL									15-19	20-24	25-34	35-44	45-54	55-64	65+	18+	15-24	15-34	35+	20-44	45+	
UNIV EST (000's)	3516	1728	1788	2186	983	2354	1162	541	275	282	772	663	565	452	507	3349	557	1329	2187	1117	1524		
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%		
SAMPLE	15312	7542	7770	9446	4221	10278	5034	2480	1228	1263	3162	2326	2329	2163	2241	14966	2491	5653	9659	7351	6733		
12 month - NATIONAL - ALL ADULTS	456	255	201	269	146	256	200	77	59	61	140	98	60	27	11	422	121	261	196	299	98		
listened to radio - live, on the internet (via radio station's website or via media-player)	13%	15%	11%	12%	15%	11%	17%	14%	22%	22%	18%	15%	11%	6%	2%	13%	22%	20%	9%	17%	6%		
listened to a radio clip/archive, stored on a radio station's website (website will use 'Real Player' or 'Media Player')	226	127	99	125	63	114	112	42	36	33	69	48	24	13	3	205	69	138	88	149	40		
	6%	7%	6%	6%	6%	5%	10%	8%	13%	12%	9%	7%	4%	3%	1%	6%	12%	10%	4%	9%	3%		
None of these	2972	1425	1546	1869	812	2053	919	447	200	207	608	546	496	420	495	2848	407	1015	1957	1361	1410		
	85%	82%	86%	86%	83%	87%	79%	83%	73%	73%	79%	82%	88%	93%	98%	85%	73%	76%	89%	79%	93%		
Don't know/NS	2	2	-	-	-	2	-	-	-	-	-	0%	1	0	1	0%	2	-	0%	2	0%	1	

# Appendix D.3a: JNLR Internet Listenership 2010 – 2

Esprit Ltd.  
TABLE 509

Listening Activity - past month

JNLR/Ipsos MRI - 2010/4 - Data 2010

	TOTAL	SOCIAL CLASS						SUMMARY				REGION				COMMUNITY	
		AB	C1	C2	DE	F1	F2	ABCI	C2DE	F1F2	ACTIVE FARMER	CO. DUBLIN	REST LEIN.	MEN -STER	WOMEN -OLST	URBAN	RURAL
UNIV EST (000's)	3516	475	967	826	979	183	86	1442	1804	270	132	967	936	974	639	2152	1364
SAMPLE	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
12 month - NATIONAL - ALL ADULTS	15312	2000	4348	3709	3777	980	498	6348	7486	1478	736	2690	4137	4676	3789	8158	7154
Listened to radio - live, on the internet (via radio station's website or via media-player)	456	112	164	89	77	12	2	276	166	15	5	157	127	96	78	325	131
	13%	24%	17%	11%	8%	7%	3%	19%	9%	5%	4%	16%	14%	10%	12%	15%	10%
Listened to a radio clip/ active, stored on a radio station's website (website will use 'Real Player' or 'Media Player')	226	63	80	40	35	6	2	143	74	9	2	73	66	48	40	155	72
	6%	13%	8%	5%	4%	3%	3%	10%	4%	3%	2%	8%	7%	5%	6%	7%	5%
None of these	2972	345	770	719	887	168	83	1116	1605	251	126	783	784	857	547	1769	1203
	85%	73%	80%	87%	91%	92%	95%	77%	89%	93%	96%	81%	84%	88%	86%	82%	88%
Don't know/NS	2	0	-	1	0	-	-	0	1	-	-	-	-	2	-	2	-
	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

JNLR-Jan to Dec'10 (Published Feb'11)

Appendix D.4: JNLR Internet Listenership 2011 – 1

Eggsri Ltd. TABLE 612		JNLR/Ipsos MORI – 2011/4 – Data 2011																				
		Listening Activity – past month																				
		SEX				STATUS				AGE								SUMMARY				
		TOTAL	MALE	FEMALE	HOUSE -KEEPER	H/R +dep	MARR /MID	SINGLE	WORKING WOMEN	15-19	20-24	25-34	35-44	45-54	55-64	65+	18+	15-24	15-34	35+	20-44	45+
UNIV EST (000's)		3508	1721	1787	2193	970	2361	1147	527	270	254	756	669	576	460	527	3341	524	1280	2228	1679	1559
SAMPLE		1008	508	498	603	263	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008	1008
12 month – NATIONAL – ALL ADULTS		13584	7698	7886	9684	4272	10478	5106	2469	1137	1300	3306	2995	2344	2187	2315	14883	2437	5743	9841	7601	6846
Listened to radio – live, on the internet (via radio station's website or via media-player)		493	276	217	281	148	274	219	93	64	51	167	106	64	26	15	455	115	282	211	324	105
Listened to a radio clip/archiver, stored on a radio station's website (via radio station's Real Player) or Media Player)		14%	16%	12%	13%	15%	12%	19%	18%	24%	20%	22%	16%	11%	6%	3%	14%	22%	22%	9%	19%	7%
None of these		2927	1405	1523	1864	794	2041	886	410	192	190	566	542	502	430	506	2809	382	948	1979	1298	1437
		83%	82%	85%	85%	82%	86%	77%	79%	71%	75%	75%	81%	87%	93%	97%	84%	73%	74%	89%	77%	92%

JNLR-January to December 2011 (Published Feb 2012)

Esprit Ltd.  
TABLE 612

Listening Activity - past month

JNLR/Ipsos MRI - 2011/4 - Data 2011

	TOTAL	SOCIAL CLASS						SUMMARY				REGION				COMMUNITY	
		AB	C1	C2	DE	F1	F2	ABCI	C2DE	F1F2	ACTIVE FARMER	CO. DUBLIN	REST. LEIN.	MTN -STER	CONN/-TIST.	URBAN	RURAL
UNIV EST (000's)	3508	455	947	789	1053	171	93	1402	1842	264	138	955	946	972	635	2143	1365
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
SAMPLE	15584	2055	4334	3554	4159	953	529	6389	7713	1482	753	2805	4243	4714	3822	8336	7248
12 month - NATIONAL - ALL ADULTS																	
Listened to radio - live, on the internet (via radio station's website or via media-player)	493	114	174	91	99	12	4	288	190	16	7	164	131	115	83	336	158
	14%	25%	18%	12%	9%	7%	4%	21%	10%	6%	5%	17%	14%	12%	13%	16%	12%
Listened to a radio clip/archive, stored on a radio station's website (website will use 'Real Player' or 'Media Player')	234	56	85	44	42	6	1	141	86	7	2	73	66	56	38	159	74
	7%	12%	9%	6%	4%	3%	1%	10%	5%	3%	2%	8%	7%	6%	6%	7%	5%
None of these	2927	325	742	678	937	157	88	1067	1614	246	131	765	792	830	539	1748	1179
	83%	71%	78%	86%	89%	92%	95%	76%	88%	93%	95%	80%	84%	85%	85%	82%	86%

JNLR-January to December 2011 (Published Feb 2012)

## Appendix E: Email Correspondence

### ***Appendix E1: Correspondence with ComReg***

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**Joseph Coughlan** <joseph.coughlan@comreg.ie>  
To: Vanessa Monaghan <nessymon@gmail.com>  
Cc: broadcasting <broadcasting@comreg.ie>

23 February 2012 17:48

Hello Vanessa,

Thank you for your query.

I will try to give you some general information for your studies.

ComReg's statutory responsibilities lie in the management of the radio spectrum in Ireland – including the radio spectrum used by broadcasting services. The responsibility for the content carried on the broadcasting services lies with the Broadcasting Authority of Ireland (BAI), not with ComReg.

### ***Appendix E.1a Correspondence with ComReg.***

The Broadcasting Act 2009 is the principal piece of legislation relating to the regulation of broadcasting services in Ireland. ComReg can issue radio spectrum licences under this act. I recommend you look at section 133 of this act in particular as it relates to digital sound broadcasting multiplexes.

At present ComReg have issued one Digital Sound Broadcasting Licence to RTÉ and they transmit from 5 transmission sites in the country. Further information on this can be found on [digitalradio.ie](http://digitalradio.ie) or from RTÉ NL. ComReg have not issue sound broadcasting licences to the BAI at present.

While the BAI have informed you to contact ComReg for further information, in relation to the future of Radio in Ireland, whether it be digital or analogue, the BAI play a very significant role. This is as ComReg issue Broadcast licences to the BAI at their request.

I hope this gives you some general information for you to consider in your studies, if you have any further questions just let me know and I will do my best to answer them for you.

Kind Regards

**Joseph Coughlan**

**Radio Spectrum Engineer - Broadcasting**

**ComReg**

Telephone +353 1 804 9767

### ***Appendix E.1b/E.1c Correspondence with ComReg***

**Vanessa Monaghan** <nessymon@gmail.com>  
To: Joseph Coughlan <joseph.coughlan@comreg.ie>

18 April 2012 09:54

Hi Joseph,

Thanks a million for your help so far. It helped clear up some things for me. There a couple of other questions I have if you wouldn't mind helping me out.

If someone applies for a trial licence for D.A.B. would it be you who gives the go ahead for that?

Is there a limit of the number of trials that are given for a certain technology?

The D.A.B. trials that are starting this June, they are for a year? With transmission sites in a couple of places ? Will this be the last D.A.B. trial or does that depend if someone applies for another trial licence?

Are there any plans or have there been any applications for trials for HD Radio or DRM radio?

A lot of the people I've been speaking to have mentioned that 4G technology could change the way we consume radio, are there any plans for 4G trials or when can we expect 4G in Ireland?

Thanks a million for your help, I really appreciate it.

Vanessa

### ***Appendix E.1d Correspondence with ComReg***

**Joseph Coughlan** <joseph.coughlan@comreg.ie>  
To: Vanessa Monaghan <nessymon@gmail.com>

18 April 2012 16:13

Hello Vanessa,

I have tried to answers your questions in blue below.

Regards

**Joseph Coughlan**

**Radio Spectrum Engineer**

**ComReg**

Telephone +353 1 804 9767

## Appendix E.1e Correspondence with Comreg

4/27/12

Gmail – DAB enquiry

ComReg issue Test and Trial Licenses under ComReg's Test and trial scheme. You can find more information on this on our dedicated website [www.testandtrial.ie](http://www.testandtrial.ie).

Is there a limit of the number of trials that are given for a certain technology?

No limit has been set as such however we would be keen for the test and trial licensing scheme to provide applicants an opportunity to experiment with new technologies /techniques rather than duplicating previous tests/trials. Each application is dealt with on a case by case basis.

The D.A.B. trials that are starting this June, they are for a year? With transmission sites in a couple of places ? Will this be the last D.A.B. trial or does that depend if someone applies for another trial licence?

ComReg as yet has not issued any test/trial licence for DAB to start this June. As mentioned above each application for a test and trial licence will be dealt with on a case by case basis.

Are there any plans or have there been any applications for trials for HD Radio or DRM radio?

A DRM trial was carried out by RTÉ NL in 2007, RTE NL may be able to provide you with further information on this trial. We have not received any application for a HD Radio trial as yet.

A lot of the people I've been speaking to have mentioned that 4G technology could change the way we consume radio, are there any plans for 4G trials or when can we expect 4G in Ireland?

The industry will play the main role in deciding when 4G services will be deployed, ComReg is currently in the process of arranging a multi band spectrum award, which will make more spectrum available to facilitate the industry in rolling out 4G services. Further information on this can be found at [http://www.comreg.ie/radio\\_spectrum/gsm\\_band\\_liberalisation\\_\\_and\\_800\\_mhz\\_spectrum.713.html](http://www.comreg.ie/radio_spectrum/gsm_band_liberalisation__and_800_mhz_spectrum.713.html)

4G technology, for example LTE, is another mechanism for providing high speed data to and from users. Depending on the availability of the content and the location of the user, the user may choose to access radio services over 4G wireless networks, fixed networks, broadcast networks, satellite networks etc. There are some benefits to broadcast networks as they typically provide services on a free to air basis, other services may be subscription based and streaming/ accessing content may impact on their data package. Accessing radio over 4G networks however may offer the user a greater variety of content. An area where they can work together is using technology such as Hybrid broadcast where the user assesses the audio content over the broadcast network while additional programme related information can be exchanged over the 4G network. Creating a new radio experience, it will be interesting to see what way things pan out.



Vanessa Monaghan <nessymon@gmail.com>

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## Thesis Help

2 messages

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**Vanessa Monaghan** <nessymon@gmail.com>

23 April 2012 15:01

To: info@bai.ie

Hi Denise,

I spoke to you on the phone on Thursday evening about my thesis and a few questions I had that I'd love the BAI to reply to.

There hasn't been any DAB or DAB+ licensing legislation yet. Why is this and are there any plans to put this on the agenda?

Is Digital Radio in Ireland not a priority for the BAI?

Commercial licences are coming up for renewal in the next year or two, would it not be beneficial by that stage to have some firm concrete ideas of what will happen with DAB/DAB+ licensing?

The standard for DAB, hasn't been confirmed yet? Even though DAB+ would be better for space on multiplexes and for audio quality for the listeners, would there be concern about using this standard if we share a border with the U.K. and the standard there is DAB?

DAB is just one type of Digital Audio Broadcasting, is the BAI looking at licensing any other type of Digital Terrestrial Broadcasting other than DAB?

If there are different formats, would there be a chance that new licences would be cross platform licences for 'Digital Audio Broadcasting' but on different platforms like DAB, DRM or HD Radio.

The Broadcasting Act of 2009 says that stations would be given help to change to digital. What type of help would this be?

Once 4G hits Ireland, the capabilities for better mobile radio and televisions services would be huge. Because the devices that we are looking at this content on is changing, should the radio and television terminology be changed so then we would be talking about Audio or Visual Content broadcast in Ireland rather than Radio and Television?

Thanks a million for your time, if you have any questions or anything isn't clear please do not hesitate to contact me.

Vanessa

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## *Appendix E.2a Correspondence with BAI*

**Reception BAI** <reception@bai.ie>  
To: Vanessa Monaghan <nessymon@gmail.com>

24 April 2012 09:47

Dear Vanessa

Thanks for your email.

The Broadcasting Act 2009 provides for the establishment of digital broadcasting in Ireland.

The Act provides that RTÉ will establish and operate a multiplex for the purposes of providing a digital sound broadcasting services. The Act also provides that ComReg (the Commission for Communications Regulation) will be responsible for licensing the spectrum required in respect of digital sound broadcasting services.

The BAI has been tasked with ensuring the development of commercial and community digital radio. The [BAI Strategy 2011-2013](#) states the BAI will examine the desirability or, and potential, for digital sound broadcasting. It is anticipated that a programme of work to deliver this will commence in 2013. The BAI has also recently [consulted on its proposed radio licensing plan](#) for 2012/2013 and we are studying the responses to that consultation.

In terms of assistance to be provided by the BAI, this would form part of that work and for example the 2009 Act requires the BAI to consider the needs of community broadcasters regarding digital broadcasting.

It might be useful for you to contact the representative bodies for [Commercial Broadcasters](#) and [Community Broadcasters](#) and seek their opinions on the matter.

I hope the above is helpful and if you have any further questions please contact us. I wish you all the best with your thesis.

Kind regards,

Denise Murray

Broadcasting Authority of Ireland – Údarás Craolacháin na hÉireann

2-5 Warrington Place, Dublin 2, Ireland

T: + 353 (0)1 644 1200

F: + 353 (0)1 644 1299

### *Appendix E.3: Correspondence with Q-Music*



Vanessa Monaghan <nessymon@gmail.com>

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#### **Thesis Help Please?**

2 messages

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**Vanessa Monaghan** <nessymon@gmail.com>  
To: student@q-music.be

21 March 2012 16:29

Hi There,

Firstly, I'm sorry that I don't speak your language. I am a mature student doing my university thesis in Dublin City University in Ireland. I am looking at DAB radio in Ireland and how radio is changing.

One chapter I am working on looks at new technologies for DAB radios and also web cams. I am very impressed with how your studio stream looks, it has really good graphics and I love how you incorporate music videos and other video onto the TV screens in the studio.

You use Dalet? I am interested in finding out if it is possible to incorporate the videos you are showing in the studio from Dalet. Are these also in your database as well as the audio for each track?

Also I know that it is possible to use RSS feeds for updates for music players and DAB radio. Do you use RSS feeds also for use with the graphics on your studio stream?

If you could help me I would be really grateful. I am very impressed with your studio set up and your stream. It is definitely the best one I've seen.

Thank you for your time.

Vanessa Monaghan

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### *Appendix E.3a: Correspondence with Q-Music*

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**Thorn Weyers** <thorn.weyers@qgroup.be>  
To: "nessymon@gmail.com" <nessymon@gmail.com>

22 March 2012 10:11

Vanessa,

Only Dalet+ uses video files, (and Q-music uses Dalet)

We generate the music videos with a self-build media player, which uses our music videos and if there's no match in our system, it looks for a version on YouTube

## Appendix E.3b: Correspondence with Q-Music

4/27/12

Gmail – Thesis Help Please?

We don't use RSS feed ...

Thanx for the compliments about our studio,

Actually we broadcast also on digital television in Flanders ...

If you have more questions

Let us know.

Greetings

Th/

THORN WEYERS

MANAGER VISUAL RADIO / Q-MUSIC



Q-MUSIC

MEDIALAAN 1 | 1800 VILVOORDE

T +32 (0) 2 2553243 | F +32 (0) 2 2553819

E [thorn.weyers@q-music.be](mailto:thorn.weyers@q-music.be) | W [www.q-music.be](http://www.q-music.be)

DISCLAIMER/ Deze e-mail is uitsluitend bestemd voor de geadresseerde(n).

De verstrekking aan en gebruik door anderen is niet toegestaan.

Q-music sluit iedere aansprakelijkheid uit die voortvloeit uit elektronische verzending.

This e-mail is intended exclusively for the addressee(s), and may not be passed on to, or made available for use by any person other than the addressee(s).

Q-music rules out any and every liability resulting from any electronic transmission.

**Van:** Vanessa Monaghan [<mailto:nessymon@gmail.com>]

**Verzonden:** woensdag 21 maart 2012 17:29

**Aan:** Radio BE - Mailbox Student

**Onderwerp:** Thesis Help Please?

[Quoted text hidden]

<VMMa Disclaimer>

## Appendix E.4 DigitalRadio.ie Subscription email

5/1/12

Gmail – Digital Radio in Ireland: The Last Post



Vanessa Monaghan <nessymon@gmail.com>

### Digital Radio in Ireland: The Last Post

1 message

Digital Radio Ltd <dusty@digitalradioltd.com>  
To: nessymon@gmail.com

1 May 2012 08:03

### Digital Radio in Ireland: The Last Post



#### The Last Post

Posted: 30 Apr 2012 05:36 AM PDT



With the imminent re-launch of commercial DAB in Ireland it's time for change.

The last few years blogging here about digital radio has been a great outlet but now it's time for business. From June this website for Digital Radio Ltd will be centred on the new digital radio stations we're offering.

Rather than closing down this feed, if you subscribe by RSS or email, you will continue to get updates on DAB transmission in Ireland from our sister company DB Digital Broadcasting.

As always you can unsubscribe from the feed at any time.

Thank you for your interest and your comments. 2012 is shaping up to be the most exciting of years with the DAB/DAB+ commercial trial starting in July.

Cheers,  
Dusty Rhodes

◆ [Email this](#) ◆ [Add to del.icio.us](#) ◆ [Digg This!](#) ◆ [Share on Facebook](#) ◆ [Stumble It!](#)

You are subscribed to email updates from [Digital Radio Ltd](#)  
To stop receiving these emails, you may [unsubscribe now](#).

Email delivery powered by Google

<https://mail.google.com/mail/u/0/?ui=2&ik=de5f120089&view=pt&search=inbox&th=1370735cfb03d17b>

1/2



Vanessa Monaghan <nessymon@gmail.com>

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## Digital Radio in Ireland: Q1 Report

1 message

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**DB Digital Broadcasting** <dusty@digitalradiold.com>

2 May 2012 08:06

To: nessymon@gmail.com

## Digital Radio in Ireland: Q1 Report



- 
- [Q1 Report](#)
  - [Invitations Sent But Who's Invited?](#)
  - [Day One](#)

### [Q1 Report](#)

Posted: 01 May 2012 11:01 AM PDT

At the end of each quarter you can get an update with the latest developments and achievements of the dB Digital Broadcasting DAB trial. To automatically receive updates by email or RSS feed see our [Join In](#) page.

January 2012 started with confirmation from ComReg of our trial licence for DAB transmissions. The licence covers transmitters located at Irelands four main cities; Dublin, Cork, Limerick and Galway. The three key areas on which we shall be reporting back to Comreg and the BAI are; transmission, data and content. Find more details about our trial goals [here](#).

With the licence confirmed we officially invited approximately forty broadcasters to provide radio stations to the trial. Despite the recession we had a higher than expected response, and surprisingly, some responses from outside of Ireland also.

For Irish broadcasters we have avoided general simulcasting of FM services. We believe that DAB needs to offer listeners something new or different. To make this a reality a number of new stations are going through a content licencing process with the Broadcasting Authority of Ireland which should be complete by June.

Running in conjunction with this was sourcing suppliers for the actual multiplex and transmission equipment.

For the mux we sought a supplier who was equally keen to expand the data functionality of DAB and use our trial to experiment with brand new world leading features. Our supplier of choice is the Swedish based Factum Electronics. Their mux is capable of encoding sixteen different stations in DAB or DAB+ as well as supplying DLS, DL+, EPG, Slideshow, TPEG and more right out of the box. We are excited to be working with Factum and others over the coming months on other data features yet to be announced.

On the transmission side we have engaged German company Plish, who also supply RTÉ, for our transmitters. The supplier chain is rounded off with Delta Mechanics cavity filters and Aldena for custom antenna manufacture.

### *Appendix E.5a DB Broadcasting Subscription Email*

Now the base elements are decided we are working through Q2 on putting everything in place.

We shall be rolling out the trial in three phases;

- Phase 1 Dublin July 1st 2012
- Phase 2 Cork & Limerick Q1 2013 (Subj to site upgrade works)
- Phase 3 Galway TBC

Q1 has been a very successful and exciting three months for the project. The momentum is increasing as we proceed through Q2. Keep up-to-date automatically with updates by email or RSS feed on our **Join In** page.

◆ [Email this](#) ◆ [Add to del.icio.us](#) ◆ [Digg This!](#) ◆ [Share on Facebook](#) ◆ [Stumble It!](#)

## Appendix F: Initial Proposal – December 2011

**Thesis Proposal:**     **The Future of Radio in Ireland, evolving through new technologies and what they mean for the radio practitioner as well as the listener.**

### **Introduction:**

For my thesis I wish to look at the topic of 'The Future of Radio In Ireland'. Within this I want to look at how people are changing the way they listen to radio, the changes in technologies and what this means for broadcasters along with how social media has changed the interaction between the radio station and listener and what this means for a station's programming.

For me this is an interesting subject and one that is close to my heart. During the 1990's I presented on pirate radio on FM in the North East of Ireland. All interaction between the presenter and the listener was done by phone, when the listener called to place a request.

When I started in DCU, I didn't even realize that DCUfm ([www.dcufm.com](http://www.dcufm.com)) existed. At the same time, I began presenting shows on temporary FM licenced stations ([www.heartbeatfm.ie](http://www.heartbeatfm.ie) / [www.hotcountry.ie](http://www.hotcountry.ie)). Broadcasting online, I became aware of how instant the reaction between presenter and listener was, with friends in Louisiana listening. In college, I was then elected Deputy Manager for DCUfm and was then responsible for student training, programme scheduling and music policy on the station.

The arts and culture show, Culture Cafe, which I presented for two years on DCUfm is now broadcast on RTÉ 2XM (<http://www.rte.ie/digitalradio/twoxm/>) which broadcasts on DAB, online and through UPC audio channels.

The need for pirate radio has now diminished with broadcasters now able to get a station online for a small amount of money. This means that a station can be heard through smartphones and computers. Without the expensive costs of FM licencing, a station can be on air twenty four hours a day, manned or automated.

As radio is a topic I am passionate about and technologies are changing so fast, I feel that this will be an interesting and engaging subject to write about and research. As of December 12<sup>th</sup> 2011, there have been no official online listenership figures published for Ireland. I feel it is important that research is done in this area and while papers have been written about radio changing in other territories, nothing substantial has been done in Ireland recently.

The Broadcasting Authority of Ireland commissions the IPSO MRBI (<http://info.ipsosmrbi.com/>) to conduct a survey which is known as the Joint National Listenership Research (JNLR) which helps determine audience listening patterns in two parts, weekdays and weekends. As part of their survey IPSO MRBI ask a question about online listenership and podcasts. None of these figures have been published.

In other European countries, Norway, Germany and UK, most notably, DAB radio (Digital Audio Broadcasting) is being promoted and countries are deciding when they should leave analogue behind and concentrate on digital radio. In Ireland, while we do have DAB radio, it is limited to the main population centres and is not widely available. In his address 'The Future of Public Service Media in Ireland' in the Helix on October 17 2011, Noel Curran, Director General of RTÉ, ([www.rte.ie](http://www.rte.ie)) spoke of the integration of digital television in Ireland but never mentioned digital radio. RTÉ launched their new online audio player on the same day and also announced pay cuts for staff, which overshadowed that digital radio was not mentioned.

As RTÉ is the biggest media agency in the country and a lot of stations are finding themselves financially stretched, this is an interesting time to see if Ireland will be able to keep up with what is happening in Europe or not and what factors will contribute to that.

Overall listenership has dropped in Ireland to 84% in the last ten years while in the UK radio reaches 91% of the population. DAB radio ratings are now said to be at 26.8% according to RAJAR (Radio Joint Audience Research) ([www.rajar.co.uk](http://www.rajar.co.uk)), the UK equivalent of JNLRs. I would like to investigate whether this is because people require more choice and alternatives, like DAB could give, or whether people are listening to online streaming services such as Last FM ([www.last.fm](http://www.last.fm)) or Grooveshark (<http://grooveshark.com/>) or indeed downloaded podcasts.



## Literature Review:

The way audiences consume media has changed. Our Convergence Culture means that devices like our phones are now able to perform more than one task. Smartphones can now enable the user to surf the internet, listen to radio and perform office tasks. In 1983, Ithiel de Sola Pool was one of the first to explain convergence in his book 'Technologies of Freedom' (P10 cited in Jenkins)

'A process called the “convergence of modes” is blurring the lines between media, even between point to point communications, such as the post, telephone and telegraph, and mass communications, such as press, radio and television. A single physical means – be it wires cables or airwaves – may carry services that in the past were provided in separate ways. Conversely a service that was provided in the past by any one medium – be it broadcasting, the press or telephony – can now be provided in different physical ways. So the one to one relationship that used to exist between a medium and its use is eroding.'

Jenkins himself then explains how different forms of media are placing themselves within this convergence through technology.

'For the foreseeable future, convergence will be kind of a kludge - a jerry-rigged relationship among different media technologies – rather than a fully integrated system. Right now, the cultural shifts, the legal battles and the economic consolidations that are fueling media convergence are preceding shifts in technological infrastructure. How these various transitions unfold will determine the balance of power in the next media era.'

(Page 17)

In 'New Infotainment technologies in the home', the topic of entertainment as the driver of New Information Technology is addressed. *'It is a truism that entertainment will be the driver that at long last creates adequate market demand for advanced information technologies in the home.'* (Page 91) New technological advancement in home theatre systems and the convergence of radio and television services through companies like UPC ([www.upc.ie](http://www.upc.ie)) seems to support 'entertainment based “killer applications”

theory.

In this book, it is pointed out that *'one of the factors that will help determine how consumers respond to the potential of advanced information technology is the way the media cover the "the information technology story", which helps set the public agenda for the topic.'* This is interesting where DAB radio is concerned. In the UK, DAB radio is being embraced, while here in Ireland there has never been any mainstream media push or very positive news stories to promote DAB radio.

One of the points Jenkins makes is how easy it has become for the consumer to create media.

“We’re in a moment of time in which there’s been an explosion of new media technologies which makes it possible for the average person to archive, annotate, recreate, recirculate media, to create their own blogs, to create their own podcasts, to sample, retool, media in a variety of ways. This is an enormously empowering moment.. there has always been an urge to create media but never before have we had such a powerful platform for the distribution for amateur produced media.” Henry Jenkins 2007

Leila Green states that

*'Both media vehicles (broadcasting and the Internet) may be positioned as popular, leisure and domestic, and both may involve considerable resources in time and money, but there are significant differences. The most glaringly obvious is that the consumption of popular media involves the active creation of meaning from products involved, but does not concern creation of meaning from the products. In contrast, consumers are often the co-creators of the culture they consume in many Internet technocultural domains' (Page 160)*

This could be taken as the listener of a radio show, listening online, interacting with the presenter through Twitter or Facebook requesting songs or commenting on certain topics. These listeners are not just listeners, they are also helping create the content that they are now listening to.

This idea is pushed even further as Norie Neumar (p 214) explains the difference between radio time and internet time. A listener to a show may listen to a podcast or on demand service.

'broadcast radio has its own timeslot – a time of day and all that goes with that – a whole affective or emotional microclimate and locus of encounter where listeners may feel themselves to be part of a listening community. While re-'broadcast' as audio-on-demand is becoming more common, as well as Podcasting, both of these bypass the pleasures as well as the exigencies of timeslot. Timeslot involves a specific duration – 'real-time' that is not alterable on demand. And there is also something further that is fundamentally different about time in a radiophonic work as compared to an internet work – something within the work itself, often identified with its 'linearity'.

This indicates while the listener maybe able to listen in what seems like real time, reality is fractured as they cannot partake in any discussions, competitions or interactions that maybe taking place between the presenter and the consumer. An example of how this would work would be Rick O'Shea's daily radio show on RTÉ 2FM, where Rick embraces Twitter asking followers, before his show commences, what stories he should cover that day. During his show he then uses 'Re-Tweets' to show his listeners some of the feedback he has received.

In the article Local Radio and Microblogging: How Radio Stations in the U.S. are Using Twitter (2011) it states though:

'there is an assumed homophilous relationship between the social network services used by a radio station, perhaps posted by on-air personalities, and the connectivity of listeners to that site. The network structure also seems to be more emergent than formal, since members of the network largely determine the future existence of the system. Although radio station personalities might control the initial dissemination of information, the future viability of the network is dependent upon the connections of followers to the station, as well as to each other. '

To discover what impact a change to digital radio would have in Ireland, we must look elsewhere to see how other countries implemented changes. Del Blanco states that in Brazil 'For the past 10 years, government, radio broadcasting stations, and sectors of civil society have been discussing which technology of digital transmission (IBOC, DRM, or DAB) is to be adopted in the country, without coming to a consensus'. This echoes the current problem in Europe where France have , 'officially adopted DMB-A a radio-focused variant of the Eureka-147 T-DMB multimedia broadcasting standard '([www.rwonline.com](http://www.rwonline.com)), however the roll out for this service stopped and the CSA which regulates broadcasting in France is now to ask the Ministry of Industry to adopt Eureka-147 DAB alongside the original proposal. This means there are is more than one standard, much akin to a videos PAL and Secam variants.

In his paper Digital Audio Broadcasting in Canada: Technology and Policy in the Transition to Digital Radio, Brian O'Neill (P 73) states

'DAB's progress has been slow, however, in part due to sluggish governmental and regulatory support, the initial unavailability of affordable receivers, and the general lack of enthusiasm on the part of service providers to take advantage of DAB's potential for value-added content. The United Kingdom is the lead- ing exception to this, where there has been wider market acceptance of the standard and strong incentives for content providers to develop DAB-only services. However, the decision of YLE, the Finnish public broadcaster, to shut down its DAB network in 2005 sent a warning signal to the broadcast world that DAB long- term may not be the only digital solution.'

This shows that other technologies, perhaps Satellite radio, which has successful subscription services, XM and Sirius Networks in the USA , may be an option for Europe.

## **Research:**

My primary research will involve a mixed method approach of qualitative and quantitative methods. I will use online survey engines such as SurveyMonkey ([www.surveymonkey.com](http://www.surveymonkey.com)) to ascertain data in regards to radio listening habits from as many people as possible. I have already started a pilot survey, to

make sure I ask the correct questions and give the correct options for the answers.

I will also use focus groups to find out about usability of phones, online players and other devices for listening to radio. I especially would like to look at online players for each station's website. Many of the local stations make it extremely difficult to listen to their services online. Instead of clicking one link to access a player, a listener must click up to three times to get an online stream as with Galway Bay FM (<http://www.galwaynews.ie/galwaybayfm>) and Radio Kerry (<http://www.radiokerry.ie/live.php>).

I hope to speak to Irish radio practitioners about how changes in social media and technologies are effecting them. This will also give me a clear view if digital broadcasting is a priority for them.

Some Irish stations including Spin 1038 and Newstalk are now also using webcam for online streaming of the studios, this also brings visual rights questions into play and I hope to address these with these stations.

As no online listenership statistics have yet been published, I feel that the main research issue is getting online listenership statistics from the individual stations themselves. If the stations do give me this data, this would make for a very comprehensive study in online listenership in Ireland.

People I wish to speak to include:

- ⤴ Broadcasting Authority of Ireland – to gain an insight into FM and digital licencing
- ⤴ Dusty Rhodes - Digital Radio Ltd. ([digitalradioltd.com](http://digitalradioltd.com))
- ⤴ John McMahon - Head of RTÉ 2FM
- ⤴ Mark McCabe - Head of RTÉ 2XM
- ⤴ Brian McColl – BMacMedia (Radio Trainer / 4FM Presenter)
- ⤴ Dara Quilty – Presenter, Spin 1038
- ⤴ Andrew Dubber- University of Birmingham, Author of Radio In The Digital Age to be published by Polity Books in 2013/2014 ([radiointhedigitalage.com](http://radiointhedigitalage.com))
- ⤴ Greg Parke – Owner of Buzz Radio FM ([www.buzzradio.fm](http://www.buzzradio.fm))
- ⤴ Station Manager of GaydarRadio.com (UK Based DAB and online station)
- ⤴ Station Manager of XFM, London, UK

I have already spoken to Greg McQuaid, Producer Breakfast Show, KFOG ([www.kfog.com](http://www.kfog.com)), San Francisco, California, about online listenership and patterns. By speaking to people from outside Ireland, I hope to gain an insight into how things have changed for them using digital or satellite broadcasting.

I also hope to attend Radio Days Europe in Barcelona ([www.radiodayseurope.com](http://www.radiodayseurope.com)) in March. This will hopefully give me an extra insight to how European heads of radio are looking at the future. It would also give me the opportunity to meet these people.

### **Timeline:**

I hope to start my thesis properly before the end of January. From here I will start researching and interviewing. I hope to have these concluded and transcribed by the second week of March.

Radio Days Europe costs six hundred and forty five euro, just for the two days conference, so I am hoping to get press accreditation. If I do then have the opportunity to go to Radio Days Europe, I will have established a good working knowledge of all technologies and changes within the industry. At this stage, I should know if there are any serious questions that need to be addressed and would be able to ask them at this conference.

Following this, I hope to have all audio transcribed by the following week, leaving me to have a first draft of my thesis written by the first week of April. At this stage, I should hope to see clearly, if I have missed out on anything or if any extra research needs to be done in one particular area. I aim to have the final draft of my thesis ready for print in the last week of April.

### **Conclusion:**

At the end of my thesis I hope to have gained a valuable insight into what the future possibly holds for Irish radio. At the moment, as far as I can see, there are a number of factors which are holding Ireland back.

- ✧ Ireland is an island, what countries like Germany or Norway do, don't immediately effect how radio is run in Ireland.
- ✧ The fact that all DAB transmitters are not yet switched on in Ireland, shows that RTÉ cannot invest in the medium.
- ✧ Radio listenership is falling in Ireland, is lack of choice a reason ?

Alongside my radio presenting and my radio management skills, I hope to take this thesis and make it a valuable asset in my future career. As well as becoming familiar and confident in technologies which may change the face of Irish radio, I wish to show my research, time management and writing skills.

Technologies change so fast that I hope my thesis can become a platform from which new data can be added to in two years time to get an even clearer picture of the future. I also hope that radio stations may take my findings on board.

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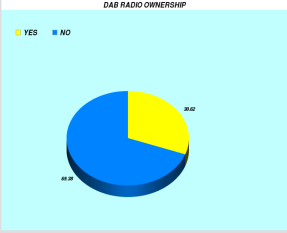

Extra reading list (awaiting copies)

- ♣ Chigwell, H, 2009 *Key Concepts in Radio Studies*, Sage Publications
- ♣ Criswell, A. 2004, *Understanding Radio (Studies in Culture and Communication)* Routledge
- ♣ Kirby, A, 2009, *Digimodernism: How New Technologies Dismantle the Pastmodern and Reconfigure Our Culture*: Continuum Publishing Corporation
- ♣ Levinson, P, 1997, *The soft edge: a natural history and future of the information revolution*, Routledge
- ♣ Stuart Hall – Encoding/Decoding
- ♣ Nightingale V, Ross K, 2003, *Critical Readings: Media and Audiences*, Maidenhead, Open University Press

## Appendix F.2 Presentation Slides – December 2011

<p style="text-align: center;"><b>Thesis Proposal</b></p> <p><b>The Future of Radio</b></p> <p><b>evolving through technological and multimedia advances and what this means for the practitioner and the listener</b></p>  <p>Vanessa Monaghan 58767904</p>	<p style="text-align: center;"><b>Radio</b></p> <ul style="list-style-type: none"> <li>• Listenership in Ireland, down - UK up <ul style="list-style-type: none"> <li>– Why, is it lack of choice</li> <li>– People listening to Groovespark. Last FM</li> </ul> </li> <li>• No official online listenership in Ireland <ul style="list-style-type: none"> <li>– IPSO MRBI, ask about Online listenership, why not published?</li> </ul> </li> </ul> 
<p>Slide 1</p>	<p>Slide 2</p>
<p style="text-align: center;"><b>Radio</b></p> <ul style="list-style-type: none"> <li>• Listenership in Ireland, down - UK up <ul style="list-style-type: none"> <li>– Why, is it lack of choice</li> <li>– People listening to Groovespark. Last FM</li> </ul> </li> <li>• No official online listenership in Ireland <ul style="list-style-type: none"> <li>– IPSO MRBI, ask about Online listenership, why not published?</li> </ul> </li> </ul> 	<p style="text-align: center;"><b>Radio</b></p> <ul style="list-style-type: none"> <li>• Online players – awful <ul style="list-style-type: none"> <li>– <a href="http://www.radiokerry.ie/live.php">http://www.radiokerry.ie/live.php</a></li> <li>– <a href="http://radioplayer.radiocity.co.uk/">http://radioplayer.radiocity.co.uk/</a></li> </ul> </li> <li>• Online players – potential revenue? <ul style="list-style-type: none"> <li>– Could these be localized adverts, no matter where in the world you're listening, different territories</li> </ul> </li> <li>• Smartphones</li> </ul>
<p>Slide 3</p>	<p>Slide 4</p>
<p style="text-align: center;"><b>DAB /Satellite</b></p> <ul style="list-style-type: none"> <li>• Noel Curran, Director General, Address in Helix <ul style="list-style-type: none"> <li>– No Mention of DAB</li> </ul> </li> <li>• Germany, Just launched,</li> <li>• Norway deciding when to switch of analogue</li> <li>• UK listenership 26.8%</li> <li>• France, DMB – A, UK Eureka – 147 DAB</li> <li>• TV Radio Channels</li> <li>• US: Satellite Subscription Services <ul style="list-style-type: none"> <li>– XM, Sirius Radio <ul style="list-style-type: none"> <li>• Would this work in Europe?</li> </ul> </li> </ul> </li> </ul> 	<p style="text-align: center;"><b>Interactivity</b></p> <ul style="list-style-type: none"> <li>• Facebook/Twitter online make the connection between Presenter and Listener instant</li> <li>• All request shows/chat shows <ul style="list-style-type: none"> <li>– Rick O'Shea, asking Twitter Followers for ideas</li> </ul> </li> <li>• Webcams <ul style="list-style-type: none"> <li>– How many people actually use them?</li> <li>– Presenters Contracts</li> <li>– Image rights</li> </ul> </li> </ul> 

## Appendix F.2 Presentation Slides – December 2011 (continued)

<p style="text-align: center;"><b>Research</b></p> <ul style="list-style-type: none"> <li>• Pilot survey – 98 replies</li> <li>• <a href="http://www.researchgate.net/publication/221111111_The_radio_listener_survey_for_my_thesis/">http://www.researchgate.net/publication/221111111_The_radio_listener_survey_for_my_thesis/</a></li> <li>– 1. How often to you listen to radio ?</li> <li>– 2. How do you listen to Radio?</li> <li>– 3. Do you or anyone else in your household own a DAB radio?</li> <li>– 4. How often you listen to radio online ?</li> <li>– 5. If listening to radio on your phone do you?</li> <li>– 6. If listening online do you ?</li> <li>– 7. What country are you living in ?</li> <li>– 8. What makes you listen to the station you most frequently listen to ?</li> <li>– 9. How do you interact with radio stations ?</li> <li>– 10. If given the option of listening ONLY online would you?</li> </ul>	<p style="text-align: center;"><b>Findings</b></p> <ul style="list-style-type: none"> <li>• 69.38% - 68 people out of 98 did not own a DAB radio</li> <li>• 27 out of 98 never listen to radio online</li> <li>• 16 out of 98 never listen to radio on their phones</li> <li>• 38 out of 98 never interact with their radio station</li> </ul> 
<p>Slide 7</p>	<p>Slide 8</p>
<p style="text-align: center;"><b>Layout of Thesis</b></p> <ul style="list-style-type: none"> <li>• Chapter 1 : Introduction <ul style="list-style-type: none"> <li>– Brief History of Radio in Ireland</li> <li>– What DAB is?</li> </ul> </li> <li>• Chapter 2: How people are listening <ul style="list-style-type: none"> <li>– Research results from that - survey/focus groups</li> </ul> </li> <li>• Chapter 3: Radio Station/Listener Interaction</li> <li>• Chapter 4: Technological changes <ul style="list-style-type: none"> <li>– from the practitioners point of view</li> <li>– How these determine programming</li> </ul> </li> </ul>	<p style="text-align: center;"><b>Research</b></p> <ul style="list-style-type: none"> <li>• Broadcasting Authority of Ireland</li> <li>• Dusty Rhodes - Digital Radio Ltd.</li> <li>• John McMahon - Head of RTÉ 2FM</li> <li>• Mark McCabe - Head of RTÉ 2XM</li> <li>• Rick O'Shea – RTÉ 2FM</li> <li>• Brian McColl – BMacMedia</li> <li>• Andrew Dubber</li> <li>• Station Manager of GaydarRadio.com</li> <li>• Station Manager of XFM, London, UK</li> </ul> 
<p>Slide 9</p>	<p>Slide 10</p>
<p style="text-align: center;"><b>Research</b></p> <ul style="list-style-type: none"> <li>• Focus Groups <ul style="list-style-type: none"> <li>– Online players <ul style="list-style-type: none"> <li>• Interaction with stations</li> <li>• How they listen to radio</li> </ul> </li> <li>• General discussion of what they want from radio</li> </ul> </li> <li>• Surveys</li> <li>• Even if I don't get all the statistics from the radio stations</li> <li>• I believe I can get concrete analysis from this</li> <li>• 98 for Pilot, can get a lot more for the real thing</li> <li>• RadioDaysEurope – March 2012, Barcelona</li> </ul>	<p style="text-align: center;"><b>Academic</b></p> <ul style="list-style-type: none"> <li>• The Future of Radio is Still Digital – But Which One? (2008) <ul style="list-style-type: none"> <li>– Marko Ala Fossi, Stephen Lax, Brian O'Neill, Per Jauert, Helen Shaw</li> </ul> </li> <li>• Different Spaces, Different Times: Exploring Possibilities for Cross Platform 'Radio' (2006) <ul style="list-style-type: none"> <li>– Norie Neumark</li> </ul> </li> <li>• DAB Eureka-147: a European Vision for digital radio (2009)</li> <li>• Digital Audio Broadcasting in Canada: Technology and Policy in the Transition to Digital Radio (2007) <ul style="list-style-type: none"> <li>– Brian O'Neill</li> </ul> </li> </ul>

## Appendix F.2 Presentation Slides – December 2011

### Academic

- What Happened to our Audience? Radio and New Technology Uses and Gratifications Among Young Adult Users (2007)
  - Albarran, Anderson, Bejar et al
- Local Ownership and Radio Market Structure (2011)
  - Todd Chambers
- Re-Thinking Crisis in the Digital Economy: A Contemporary Case Study of the Phonographic Industry in Ireland
  - *Jim Rogers*
- Need to do more research into Audience behaviour
- Stuart Hall – Encoding/Decoding
- Nighthingale/Ross: Critical Readings: Media & Audience

Slide 13

### Ta – Dah!

- Thanks for your time



Slide 14



*'Invisible airwaves crackle with life,  
Bright antennae bristle with energy  
Emotional feedback on a timeless wavelength  
Bearing a gift beyond price, almost free'*

*Rush – Spirit of Radio*