COMMUNICATIONS REVIEW - SEMINAR 5 – SUPPORTING GROWTH IN THE RADIO (AUDIO) SECTOR

The minister, Ed Vaizey, reiterated that: *'Digital switchover will be driven by the consumer'*.

It is important to understand how a digital dividend may arise and why digital radio is so difficult compared to digital television.

TELEVISION

When moving pictures are digitised the human eye cannot perceive the loss of large amounts of fine detail. This allows vast savings in transmitted data and hence fitting several digital television channels into spectrum previously occupied by a single analogue service. This benefit even applies for wide screen and high definition producing received pictures markedly higher in quality than was ever practical with analogue. Consequently:

- There were major public benefits from digital switchover.
- Much valuable Band V UHF spectrum was released for other users.
- Overseeing a switchover timetable was within the spectral efficiency remit of Ofcom.

RADIO

High Quality:
The acuity of human hearing is such that discarding even tiny amounts of detail in a sound can be noticeable. Using the most advanced coders [1] to produce a digital audio stream that is untainted and passes the statistical undetectability test requires bitrates around the 320kbps standard adopted by the BBC for HD Sound [2]. Broadcasting 320kbps requires similar bandwidth to existing FM, so any digital dividend is negligible when like is truly compared with like.

Medium Quality:
Lower bitrates [3] produce quality defined by the ITU as 'indistinguishable', meaning that people may hear a difference but cannot be sure which is best. An analogy would be two pictures with differing colours where one cannot be certain which is correct without the original for comparison. Such standards have their place for supplementary delivery systems but it is dangerous to imagine that they could prove satisfactory as the premier platform.

Low Quality:
DAB operates at even lower sound quality [4] than the above, though originally conceived to operate at 'indistinguishable' quality [5]. For national services DAB offers modest spectrum savings but the snag is that it occupies quite valuable 200MHz Band III VHF spectrum, has higher transmission costs... and putatively releases less desirable 100MHz Band II VHF FM. The inherent and unavoidable irritation of delay and echo if more than one digital set is turned on in a house remains a reason for people to use radio less.

DAB offers noise-free reception on the move but even that advantage is being eroded as FM car radios incorporating digital signal processing start appearing. Distortion due to multipath, chatter

due to interfering signals and noise due to weak signals all vanish dramatically.

With gradually increasing broadband connectivity and 4G it is foreseeable that HD Sound streaming will become commonplace, even for car and portable reception.

As was the case for television, for digital radio to achieve supremacy it is essential that it provide unarguably better technical quality than analogue transmission. No such broadcast system presently exists. Therefore:

- Government should be technology-neutral and not direct any mandatory transfer to digital radio.
- Licence extensions for those taking up DAB should be abolished or extended to stations committing to high bitrate streaming through Radioplayer or independently.

With radio being consumed equally by both sexes it was extraordinary to see just one female participant at the seminar. One wonders whether this detachment from the real world is symptomatic of the fantastic muddle - some say crisis - that the radio industry has got itself into over switching off FM, rather than exploiting its outdated limited-quality DAB inheritance primarily as a portable platform for a variety of services otherwise restricted to the internet.

More significantly, the technical aspects are complex and confusing. I suspect that many debates about a digital future for radio have not been informed by a thorough engineering grasp of audio and transmission technology.

What realism can there possibly be in a plan where Britain goes it alone in ditching analogue and leaves those arriving through the Channel Tunnel or at airports with only community stations (plus, doubtless, a band full of joyful pirates) on their FM car radios and mobiles?

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http://dcmscommsreview.readandcomment.com/radio/comment-page-1/#comment-831

1] High efficiency digital coders: AAC, Ogg Vorbis and Opus.
2] 320kbps AAC is used for Finesse HD Sound by Radio Jackie (2006) and the BBC (2010). Absolute Radio use 1Mbps Ogg FLAC (2009).
3] ITU 'indistinguishable' quality: 128kbps AAC (e.g. BBC iPlayer), 192kbps MP3 (streaming, podcasts), 256kbps MP2 (Designers' plan for DAB).
4] DAB services operate between 48kbps and 192kbps (BBC Radio 3 is the sole 192kbps service).
5] BBC Research and other European Broadcast Union Eureka 147 DAB project designers envisaged using 256kbps MP2.