10 things you need to know about...

Digital Radio

1 – As with other media, content is key in digital radio

Regardless of how it's delivered, the current experience in digital radio suggests that exclusive and attractive content on digital is the key to success. Just re-transmitting what's already available on FM/AM is not compelling enough to convince a consumer to buy a digital radio. There are a number of ways broadcasters could add value to digital radio: adding new programs, rich media (text, pictures, on-demand recording, etc.) to existing programs or increasing the coverage compared to analogue.

2 – What are the criteria for choosing the primary broadcast distribution platform for digital radio

With an increasing number of options for the primary distribution platform for digital radio, it's useful to bear in mind the following criteria:

- *The broadcast network should be cost effective and have enough spectrum available to achieve coverage and service targets;*
- *Digital radio needs a simple and cheap consumer offering: Free-to-air broadcasts with mobile/portable reception and with the possibility of easy-to-use, compact and cheap receivers;*
- *A set of multimedia capabilities, including pictures, enhanced text services, rich media, electronic programme guides, etc.*
- *Broadcasters should retain the possibility transmit traffic and travel information (TPEG).*

3 – There are four categories of digital radio distribution platform

The two main primary distribution platforms are the DAB family and the DRM family. In addition to these two, broadcasters often stream their radio services over the Internet and some include a digital radio element as part of their digital terrestrial, cable or satellite television services.

4 – The DAB Family: DAB, DAB+ and T-DMB

Standardised by the WorldDMB Project, the DAB family is characterized by a common transmission system, robust for mobile applications and with a capacity for transporting many programmes. This multiplex approach, with a "bouquet" or "package" of programmes, is particularly suitable for public broadcasters and private radio groups, allowing them to simultaneously broadcast all their programmes within a single network.

- *DAB uses MPEG-2 Layer II audio and has a capacity of approximately 6-9 radio programmes in a multiplex depending on audio quality and multimedia features deployed.*
- *DAB+ uses MPEG-4 HE-AACv2 audio and can deliver 12-18 programmes per multieplex depending on audio quality and multimedia features.*
- *T-DMB is generally used for mobile television or picture radio using MPEG-4 H.264 video and MPEG-4 HE-AACv2 audio. For TV, 2-3 channels should be possible per multiplex; for radio the capacity should be somewhat similar to DAB.*

5 – DRM Family: DRM/DRM+

The Digital Radio Mondiale (DRM) system has been designed as a replacement solution for AM bands (LW, MW, SW) offering a better audio quality and easy tuning while keeping the advantage of a large coverage area with few transmitters. This makes DRM especially suitable for international broadcasting or national broadcasting in large countries with low population density. DRM+ is an extension to DRM into the FM band (band II and also band I) with an increased capacity of 185kbit/s. DRM/DRM+ is especially suitable for small or local broadcasters that cannot afford to be part of a larger nationwide multiplex. DRM+ is often seen an alternative to HD Radio.

6 – Internet radio and IMDA

Whilst the Internet is a important medium with radio reception possible on PCs, dedicated WiFi radios and on mobile phones, it still accounts for less than 10% of the global radio audience. Further, because Internet radio is streamed, the larger the audience the large the cost of distribution. The Internet Media Device Alliance was created in 2009 to help standardise Internet Radio devices. IMDA announced its Internet radio receiver profiles (similar to those on offer in the DAB and DRM families) at IFA '09.

7 – What of Hybrid Broadcast Broadband in the digital radio domain?

Hybrid broadcast-broadband in TV and radio is a hot topic currently. In the radio scenario, broadcast networks efficiently broadcast premium content free-to-air whilst broadband networks (Internet), enrich the experience when available. The broadband networks would also offer access to niche content or channels that would never be popular enough to become available on broadcast networks (e.g. minority sport, foreign language content,...).

8 – RadioDNS

The RadioDNS initiative is the missing link between broadcast and IP technologies: RadioDNS offers a simple mechanism on Internet for broadcasters to populate their radio services and applications such as EPG, visuals or tagging. Receivers with Internet connectivity can then quickly discover if an application is present and display it whenever they are tuned to DAB, FM or Internet. Another possibility is the handover from a distribution platform to another in a transparent way: tuning to a broadcast platform when present rather than using streaming.

9 – Radio can be transported on almost all broadcast platforms

Apart from the primary broadcast distribution platforms and Internet, radio can be transported as part as part of a global offer on other broadcast platforms. The DVB family of DVB-T (terrestrial), DVB-S (satellite) and DVB-H (mobile/handheld) often carry digital radio as part of a bouquet of other services.

10 – To find out more on these technologies, come to EBU Technical and .....

DAB Family: **www.worlddmb.org**
DRM Family: **www.drm.org**
IMDA: **www.imdaalliance.org**
RadioDNS: **www.radiodns.org**

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