Digital Radio in Europe
A migration with challenges

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Objectives for Today's Summit

[Manufacturers perspective]

- Bringing broadcasters and receiver manufacturers together

- Synchronise development work on transmitting and receiving side

- Send a clear signal for digital migration in broadcast radio

From Analogue to Digital Radio

- Radio listening continuously central
  - 3 hours/day per person in Europe, more than 1/3 of daily media usage time
  - Differences in stations / conditions of listening / split across age groups

- Importance of receivers
  - No subscription: radio is FREE to listeners
  - Getting access = getting a receiver

- Maintain functionalities users are long acquainted to
  - Borderless service experience for users with common receiver market
  - User to look for the station not to worry about broadcast technology

- Open to introduce new (multimedia) functionalities
  - Benefit from synergies to be realized with device integration

What happened during the last year?

- Early 2008: EICTA identified harmonisation of digital radio approaches as urgent action
- May 2008: EBU, WorldDMB and EICTA linked their similar directed actions (workshops etc.)
- July 2008: WorldDMB Receiver Profile TF
- September 2008: Digital radio receiver profiles published, endorsed by EICTA, EBU & WorldDMB
- ➢ Triple standard receiver approach: Again one (bit more demanding) platform for Europe!
- ➢ Bringing digital radio again into the radar of CE manufacturers

Digital Radio Receiver Profiles (I)

- Triple standard receiver (DAB, DAB+, T-DMB) as basic condition towards an harmonization
  - 3 profiles defined for different use cases and technology benefits
  - Receivers of all 3 profiles to be capable to decode broadcast in 3 standards
- Published in September 2008, endorsed by EBU, EICTA & WorldDMB
- Profiles really stirred the digital radio discussion in Europe
- Expanded RDS character sets to be added (recommended for profile 1 if suitable display available), mandatory for profiles 2 & 3

- Not mentioning current analogue FM & AM services, does not mean they will be ignored (out of scope for the profiles)

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Digital Radio Receiver Profiles (II)

Profile 1 **Standard Digital Radio Receiver**

- An audio receiver with a basic alphanumeric display, able to receive DAB, DAB+ and DMB audio, expected to drive the mass market development

Profile 2 **Rich Media Digital Radio Receiver**

- An audio receiver with a colour screen display, able to receive DAB, DAB+ and DMB audio and multimedia broadcast ranging from still pictures to interactive graphics and text (picture slideshow, BIFS, EPG etc.)

Profile 3 **Multimedia Receiver**

- A multipurpose receiver with a colour screen display additionally also capable of rendering MPEG video (H.264)

- Minimum requirements ensuring interoperability across all European countries including mandatory & recommended elements with some differentiation for in-car products. Endorsed by EBU, World DMB & EICTA.
- Maintenance possible to enhance interoperability and market acceptance

Learning Phase

- How / When will broadcaster use new rich media opportunities of digital radio?

- Identify market demand => Confidence

- Ensure that the receiver really brings the broadcasted content to the user

- Ensure that the user can experience a seamless service in-house, in-car and outdoor

Digital Radio Labels

Receiver Label

- Technology neutral
- Message
  - Access to digital radio content across Europe (Interoperability!)
  - Sustainable concept, reliability
  - Convenience
- Introduce label only timely aligned together with a 'critical amount' of receivers to ensure positive recognition by customers
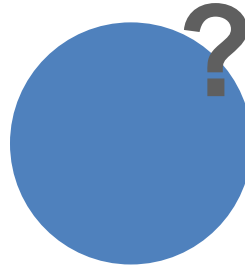
Service Label

- Digital content, known and new
- Message
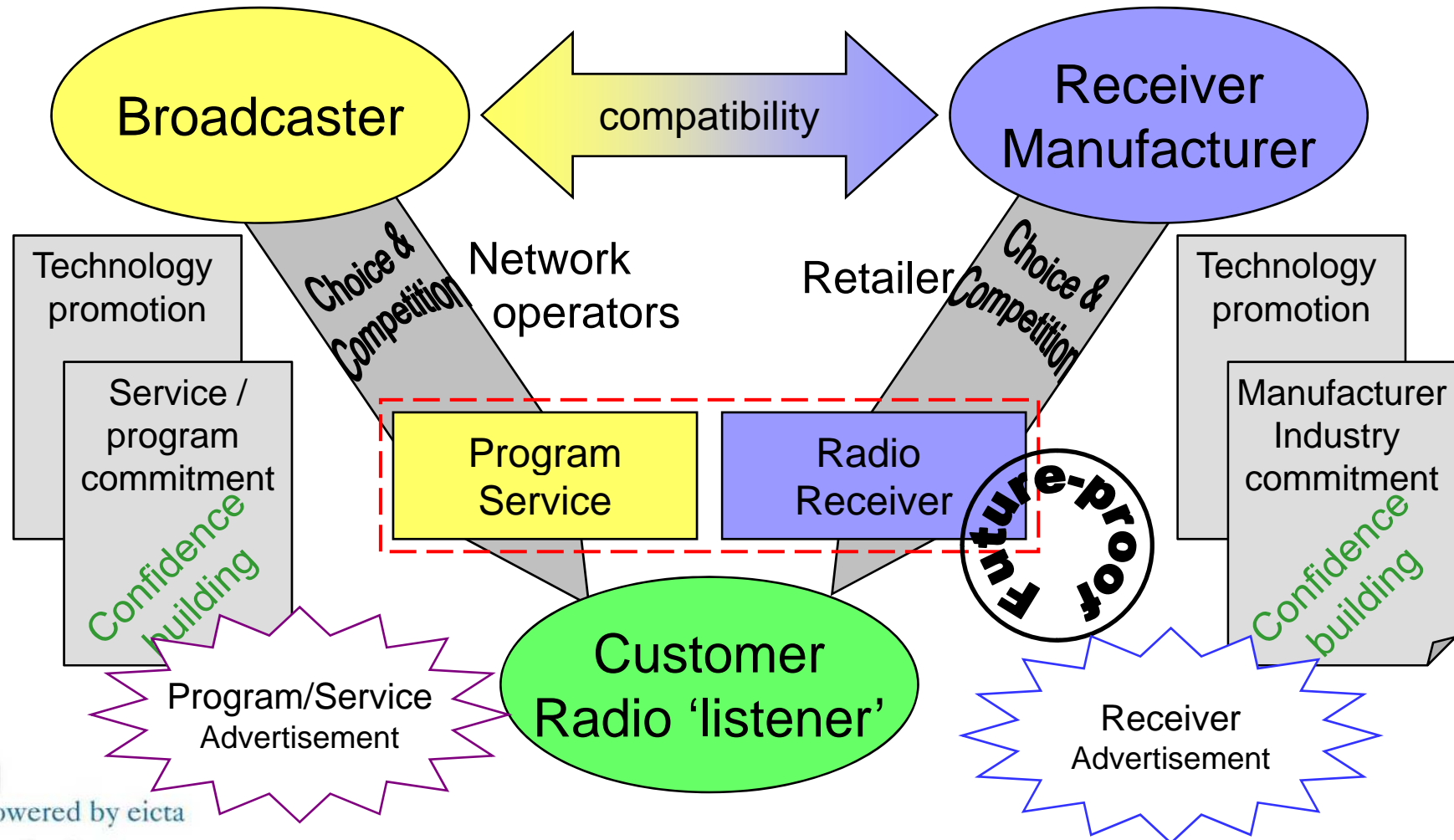 - Sustainable concept
  - Added services
  - …
- …

Next

- Development of an DIGITALEUROPE Labelling scheme for easy communication

- Encourage / Coordinate cooperation and testing during field trials

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Thank you very much.

Questions?

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Bringing Digital Radio to the People

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Broadcaster

compatibility

Receiver Manufacturer

Technology promotion

Choice & Competition

Network operators

Retailer

Choice & Competition

Technology promotion

Service / program commitment

Confidence building

Program Service

Radio Receiver

Future-proof

Manufacturer Industry commitment

Confidence building

Program/Service Advertisement

Customer Radio 'listener'

Receiver Advertisement

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Back-up Slides

Profile 1 – Standard Digital Radio Receiver

(Audio receiver with basic alphanumeric display) [1st ed. 2008-09-12, draft 2008-12-17]

Spectrum
Band 3 reception (174 to 240 MHz) is mandatory in all territories.
L-Band reception (1452 to 1492 MHz) is mandatory for all in-car products and for receivers sold in territories with L-Band services on-air or licensed.

Channel decoding
Decoding of a minimum of one sub-channel is mandatory.
Decoding of a minimum of 280 Capacity Units (e.g. 256 kbps@UEP1) is mandatory for sub-channels containing DAB audio services.
Decoding of a minimum of 144 Capacity Units (e.g. 256 kbps@EEP3B, 192 kbps@EEP3A, 96kbps@EEP1A) is mandatory for sub-channels containing DAB+ or DMB services.

Audio
MPEG layer 2 decoding is mandatory.
MPEG-4 HE AACv2 decoding is mandatory.

Text
Service label (station name) display is mandatory.
Dynamic label display is mandatory on products with a 2-line display or better (except for in-car products).
Support for the extended RDS character set is recommended on products with a suitable display. [As defined in the RDS Forum proposed revision to ISO EN 62106, see www.rds.org.uk]

EPG
EPG presentation is recommended for products with a suitable display. When implemented it may be used to select services.

Analogue services
FM-RDS and MW (AM) decoding is recommended for all products.

Traffic & Travel
For in-car products, TPEG and TMC decoding is recommended.
For in car products, announcement signalling and switching is recommended.

Service Following
For in-car products which include FM-RDS decoding, service following between DAB, DAB+ and DMB services and their signalled simulcasts carried on FM-RDS is mandatory.
For in-car products, service following between DAB, DAB+ and DMB services and their signalled simulcasts carried in adjacent DAB ensembles is recommended.

Profile 2 – Rich Media Digital Radio Receiver

(Audio receiver with colour display) [1st ed. 2008-09-12, draft 2008-12-17]

All Receiver Profile 1 functionality, *plus:*

Channel decoding Simultaneous decoding of a minimum of four sub-channels is mandatory.
Decoding of a minimum of 288 Capacity Units (total) is mandatory.

Text DL+ and Intellitext presentation are mandatory.
Journaline presentation is recommended.
Support for the extended RDS character set is mandatory. As defined in the RDS Forum proposed revision to ISO EN 62106 (see www.rds.org.uk)

EPG EPG presentation is mandatory. Decoding of the advanced profile is recommended. The EPG can be used to select and record services.

SlideShow SlideShow presentation is mandatory.

BIFS MPEG-4 BIFS presentation is mandatory.

Broadcast Website BWS presentation is recommended when a suitable browser and navigation method exist.

Traffic & Travel For in-car products, TPEG and TMC decoding is mandatory for products with integrated navigation systems.

Service Following For personal products, service following between DAB, DAB+ and DMB services and their signalled simulcasts carried in adjacent DAB ensembles and on FM-RDS is recommended.

Profile 3 – Multimedia Receiver

(Multipurpose receiver with colour display capable of rendering video) [1st ed. 2008-09-12]

All Receiver Profile 2 functionality, *plus:*

Channel decoding	Decoding of a minimum of 432 Capacity Units (total) is mandatory.
Video	H.264 decoding is mandatory