


DAB digital radio development around the world

Jeff Astle
 WorldDAB Forum
 Asia-Pacific Adviser


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WorldDAB Forum

- Over 100 members from 30 different countries - manufacturers, broadcasters, Govt Depts/regulators
- Safeguard DAB standards
- Development - receivers, content, systems
- Networking - meetings, events
- Global DAB information source

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DAB - Global standard



On-air in around 40 countries


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DAB Digital Radio in Europe

Across Europe:

- Good network coverage
- Many new services on-air
- Growing DAB sales
- UK, Germany, Denmark, Norway, Sweden, Holland, Belgium, Switzerland, Spain & Italy

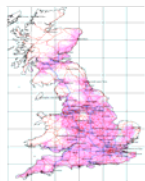



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UK - focus on audio services





- Coverage over 85% population
- 2.8 million DAB sets sold by 2005
 - Over 10% of households
- Key consumer driver: More choice
 - 420+ DAB stations on-air
 - 50% are new to the listener

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UK example - Analogue choice

National	Regional	Local
		
		

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UK example - DAB choice

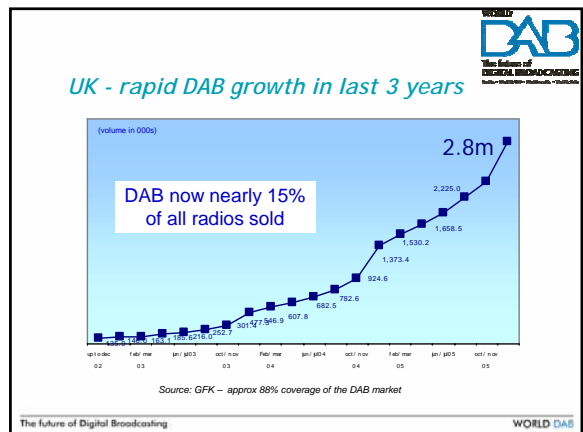
National

Regional

Local

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Central Europe

Germany

- 85% coverage, over 150 DAB services
- +300,000 sets (end 2005)

Belgium, Holland & Switzerland

- Belgium: +50,000 sets (end 2005)
- Switzerland sales growing & Holland following in 2006

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Scandinavia

Denmark

- 99% coverage
- Many new stations - more choice
- +150,000 sets (2005)
- Nearly 10% of households

Norway & Sweden

- Norway: +25,000 sets since recent launch
- Sweden - sets sales growing

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Southern Europe

Spain

- 50% coverage, launch in 2005
- National + local services eg Barcelona (48 DAB services)
- Retail sales underway

Italy

- Coverage ~ 65% population
- Consumer launch in 2006
- Rapid sales growth expected

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Asia-Pacific also leading the way

DAB developments in 2005-06

Korea	Taiwan
China	Singapore
Hong Kong SAR	Australia
India	Malaysia
New Zealand	Brunei
Indonesia	Thailand

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DAB elsewhere in Asia


Korea

- 6 multiplexes licences awarded
- Rollout in Seoul Dec 2005 (KBS, MBC, SBS)
- Focus on mobile: mix radio & TV services
- Samsung, LG: mobile DAB/DMB (PMP, PDA, phone)



Taiwan

- Successful trials, DAB licences awarded (3 national & 3 regional)
- Full commercial launch in 2006
- Taiwan global leader in DAB chipset & silicon mfr



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DAB elsewhere in Asia

Singapore

- 3 multiplexes on-air
- Proactive Govt support from MDA
- Initial sets sales +10,000 after recent promotion

Australia

- Successful trials in Sydney/Melbourne
- Govt announce DAB rollout policy

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DAB elsewhere in Asia

China mainland

- **Guangdong:** DAB/DMB trials
- **Beijing:** DAB/DMB trials - target 2008 Olympics
- **Shanghai & Tianjin** - new trials



- Aim to establish a China DAB Group
- World DAB Conference, Beijing April 2006

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DAB in Hong Kong

- **RTHK DAB trials**
 - Technical test phase nearing completion - success
 - More transmitters? New content? Multimedia?
- **Commercial Radio & Metro Radio**
 - Level of interest?
 - CR & Metro only audio licences - no multimedia
- **Future frequency planning with China mainland**
 - Band 3 frequency utilisation - OFTA

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Some conditions for success

Government/regulators

- Flexible licensing framework
- Financial support and incentives

Broadcasters

- Industry commitment - public & commercial
- Widespread coverage (around 60% at launch)
- New and attractive content
- Consumer promotion

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Rapid DAB receiver developments

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DAB covers the full range of audio products

Timeline showing product availability from Jan-02 to Jan-05:

- Jan-02
- Apr-02
- Jul-02
- Oct-02
- Jan-03
- Apr-03
- Jul-03
- Oct-03
- Jan-04
- Apr-04
- Jul-04
- Oct-04
- Jan-05

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DAB covers full range

NOW over 200 DAB products in the market

Full range:

- 75 kitchen portables
- 30 micro systems
- 25 handhelds (incl MP3 DAB)
- 20 tuner separates (incl DAB 'adapters')
- 15 clock radios
- 15 boomboxes
- 15 in-car radios
- 5 set top boxes/ home cinema with DAB

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****lowest price DAB****
Alba/Bush
£34.95

Acoustic Solutions Portal 3 £99

Pure Evoke £89

Pure Elan DX20 £59.99

Roberts Gemini 18 £70

Roberts RD20 £90

Sharp FVDB2ES £100

Bush TR2004 £69.99

Hitachi TRK 1000 £79

Pure Evoke 2XT £149

Roberts Gemini 27 DAB/FM Pause, rewind £119.99

Roberts RD50 Revival with Pause Plus £169

Roberts Gemini 25 DAB & FM & MP3 £99.50

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Bush LSD34 DAB £99.99

Hitachi AXM32 DAB micro £129

Hitachi AXM75DAB micro £199

Denon D-M35 DAB micro system £385

Sony CMT-NE27 DAB micro £149

Hitachi AXM140 micro F549 99

Hitachi AXM141 micro £99.99

Lowest price: Bush MCD07DAB Micro £49.99

Onlyko SCR205DAB

Bush LSD36 DAB £69.99

Ministry of Sound MOSMC130 micro £99.99

Philips MCB240 DAB micro system £129

Morphy Richards 29103 micro £139

Sony CMT-GP X9 DAB £199

Sonyo DC-DA503 micro £149

Prices: estimated retail prices

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Goodmans GCDR1955 clock radio w/ CD £89

Ferguson CR150D clock r. £79.99

Ferguson CR100D clock radio £49.99

Goodmans GCDR1930 clock radio £89

Tivoli Model DAB clock £229

i-Tech Cube DAB clock radio £59.99

Bush CR2004 Clock radio £49.95

Interpro RS-01 Clock radio: CD/DAB/FM £89.99

Bush CDDAB201 boombox £49.99

Genus PR1 £149

Goodmans GP185DAB Boombox £79.99

Morphy Richards 29401 boombox July 05 £119

Interpro B601 Boombox: CD/DAB/FM £99

Prices: estimated retail prices

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Sony XDR-M1 £149

Nevada handheld £79.95

Tri band £79.99

Sonyo DAB 150M with MP3 player DAB 100M Exclusive to John Lewis £99

DAB/FM/MP3 player Portal DR301 £149.95

Bush PSDAB2004 £59.99

Acoustic Solutions (replaces Kias branded) £74.99

Pure PocketDAB2000 DAB & MP3 £199.99

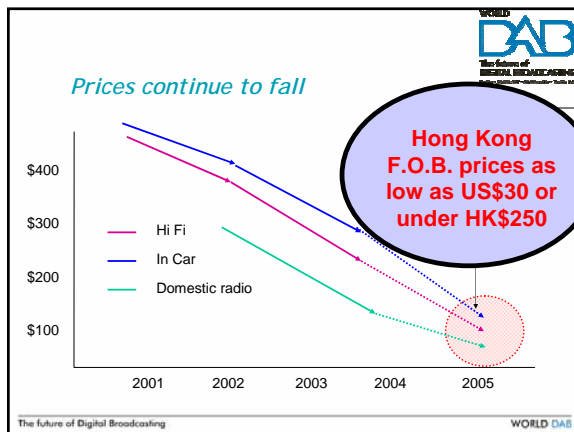
JVC KD D711 £250 incl aerial fitting

Blaupunkt Nashville car radio £299 incl car aerial

Acoustic Solutions Car Adapter £99 + fitting

Prices: estimated retail prices

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In-car DAB rollout in 2005 & 06

- DAB now available as upgrade option (eg. General Motors, Ford, Volvo, VW/Audi, Jaguar, Land Rover, Mitsubishi, Renault, DaimlerChrysler)
- General Motors DAB as standard fit on some models in UK, rollout in Europe
- By 2007 most plan DAB standard fit

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DAB listeners a listening to radio for longer

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Older early adopter profile

Radio Fans

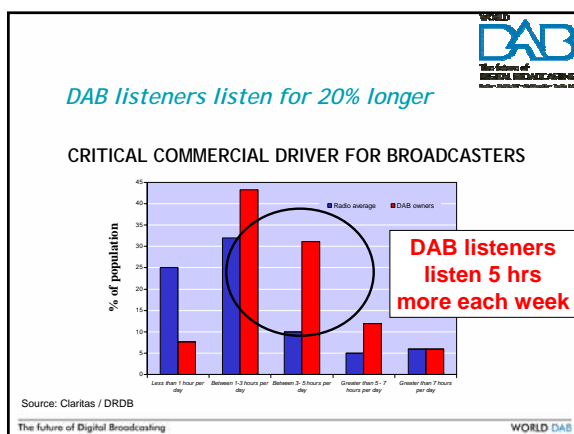
35+ years old

Married with family

Professionals

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DAB: reinventing radio for the younger (i-pod generation)

Mobile & Interactive

Personal - Choice & Control


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DAB Audio Rewind/Store/Replay

- Pause & Rewind
- Record & Replay
- Download to SD card
- USB connection
- Playback MP3 files



ROBERTS
Sound for Generations
PURE DIGITAL

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Electronic Programme Guide



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Screen radios for broadcasters



INCARO PUBLISHING

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Screen radios: Graphics Info



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Screen radios: News Menu



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Screen radios: Advertising



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Korea DMB leading the way

Using DAB platform - DMB products launching now



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DAB Multimedia in Germany

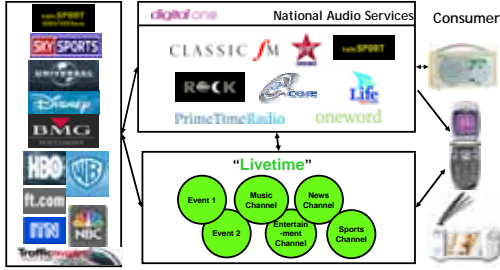
Trials in Bavaria, Germany (Pan-European project)



Germany - DAB/DMB coverage of World Cup 2006

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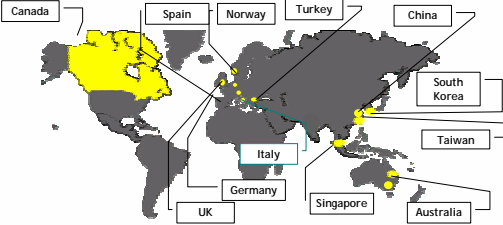
DAB Multimedia in UK



BT LiveTime - DAB multimedia & mobile TV

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Worldwide DAB Multimedia projects



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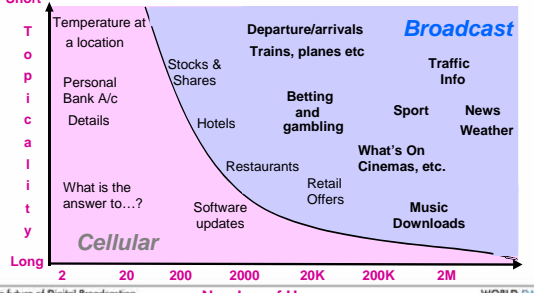
DAB Multimedia

DAB ideal mobile multimedia broadcasting (DMB)

- Reliable, robust
- Designed for mobile reception
- Receivers readily available
- Frequencies available
- Installed transmitter infrastructure
- Complimenting Telco/3G providers

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Broadcast Multimedia strengths



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Conclusions

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Is DAB market ready?

- Previous HK criteria...
 - Prices HK\$500 & 200 product types, major brands
 - Global rollout (40 countries, multi-million set sales)
- Industry demand
 - RTHK
 - CR & Metro
 - Other HK players and/or international companies
- Hong Kong is already a global hub for DAB
 - HK based manufacturers/vendors & Hong Kong CE Fairs

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Issues for broadcasters

- Can radio stay analogue...
 - Listening in decline
 - Threats to traditional radio 'spot' advertising
- Broadcasters must embrace a digital radio future
 - Make radio more engaging & involving
 - Give audiences more choice & control
 - Develop new value-add services & revenues to survive

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DAB is the future of radio...

- DAB is a global, mature, reliable and robust system
- DAB will...
 - increase time spent listening to radio
 - offer broadcasters new revenue streams
 - get radio into future multimedia devices

DAB will help secure radio's future

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Thank you for your attention

Contact details

Jeff Astle, WorldDAB Forum
email: astle@worlddab.org
tel: +44 207 2882642

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