New opportunities with Data Broadcasting

Jörgen Scott
Chief Technology Officer

www.factum.se
Content

• Datacasting
• Our experience – applications
• DAB vs. 3G: cost comparision
Different parts of the world – different approaches to DAB

Audiocentric
UK

Mixed
Europe in general
Canada

Data-focused
Korea (DMB)
Asia in general
Different parts of the world – different approaches to DAB

**Audiocentric**

**UK:**
Maximum allowance of data per ensemble (20%)
Data applications are becoming more and more interesting

**Canada:**
DAB is a replacement technology! Therefore it shall be a simulcast with analogue services, and must not deviate from the analogue services for more than 2 hours a week.
Rescue & emergency information systems are investigated
Audio-centric services

- High Quality audio
- New channels
- Lyrics/Information display
- Subscription services
- Rewind radio
- Personalised Radio
- EPG
Different parts of the world – different approaches to DAB

Mixed

**Germany:**
Traffic information!
Diamond project
MMD project
Top news

**Sweden:**
MEMO project
Trials with film (file) transfers to high-speed trains
Different parts of the world – different approaches to DAB

*Data-focused*

**Korea:**
Up to 50% of an ensemble can (shall?) be stream mode data applications. Intended for mobile TV applications!

**ASIA is on the move!**
We will very soon see new and affordable receivers coming from this region!
The economical opportunity

• DAB is particular designed for audio but should be regarded as a general carrier of digital information

• A comparison with mobile telecom networks is natural

• Comparison is made on distribution cost, not on the price of the services
Input data

• Distribution costs in GSM/GPRS 3G networks are based on public information from:
  – Vodafone
  – mmO2
  – Sonera

• DAB distribution costs is based on the Interim Report from the Swedish Commission on digital radio
  – Teracom
  – Swedish Radio
Calculations – digital audio
"GSM/GPRS"

1. Volume price (Vodafone GPRS) 1.3 EUR/MByte

2. GPRS 115 kbit/s = 0.86 MByte/Minute

3. Price per minute = 1.1 EUR / Minute

Average radio listening (SR) = 114 Minutes (53.5% pop, age 7-79)

COST: 143 EUR per Day
1. National DAB coverage (99.5%) ~ 18.6 MEUR/Year
2. Add 30% of all regional DAB multiplexes ~ 24.1 MEUR/Year
3. 53.5% = 4.18 million listeners => 0.016 EUR per day
Summary – digital audio

- GSM/GPRS 143 EUR/Day
- DAB 0.16 EUR/Day

Using telecom for audio is approx. 9000 times more expensive than DAB!
Datacasting

- Webcasting (BWS)
- Slide show (MOT)
- Dynamic Labels (DLS)
- Electronic Program Guide (EPG)
- IP broadcasting (IP tunneling)
- Traffic Information (TPEG)
- …
Datacasting applications

- Real-time traffic reporting
- Public Safety
- Events/restaurants recommendation
- Customised ads
- Rescue and emergency information systems
Educational services on the move

We can provide PAY audio services, with educational content.

- Schools
- Universities
- Business professionals
Enterprise solutions

DATA BROADCAST IN DAB (ONE WAY)
TPEG service provider overview

To produce TPEG-messages you need to have a system that:

- collects event information
- handle geographic positioning
- can update existing information
Application: Train information

- Ordinary L-band DAB network
- IPx-DAB from Factum
- Factum FDR20 data receiver
- KenCast file transferring application
Interactive broadcast

BROADCAST IN DAB - INDIVIDUAL INFORMATION VIA GSM (TWO WAY)
Enterprise solutions

RURAL AREA "PSEUDO WIDE-BAND" INTERNET ACCESS
Centralised DAB System

DAB SYSTEM WITH CENTRAL MULTIPLEXER

DAB resources are concentrated to the ensemble operator
Distributed DAB System

DAB SYSTEM WITH CASCADED (SERVICE) MULTIPLEXERS

- Every operator can use "all" DAB features
- Clear interface between operators

FACTUM ELECTRONICS  www.factum.se
The Data Only Provider
IP ONLY DAB BROADCASTING SYSTEM

If the entire ensemble is used for IP broadcasting, there is no need for any multiplexer.

ALL CAPACITY IS USED FOR IP DATA BROADCASTING!
Studio and DAB integration

Program Studio
- Playout system
- Interactive server
- Databases

DAB Transport
- DAB dataserver

API
Factum DAB Products Portfolio

**Audio:** MPEG encoders/decoders, compressors, DRC generator

**Data:** MOT encoder, PAD generator/inserter, NPAD generator/inserter, IP over DAB gateway, BWS compiler, DLS, slideshow, MOT-DO, user application API, EPG API, …

**Multiplexing:** Ensemble Multiplexer & Service Multiplexer, scheduling, system surveillance, redundancy, TCP/IP remote control, seamless reconfigurations, …

**Accessories:** DAB Data Receiver, ETI/STI Recorder, Control & Monitoring tools, …

**Co-operation Partners Services & Products:** COFDM & transmitter systems, transmitter network planning services, …
Factum Multiplexers

SPC100
SERVICE PROVIDER SYSTEM CONTROLLER

EMX100
ENSEMBLE MULTIPLEXER

SMX100
SERVICE COMPONENT MULTIPLEXER

EPC100
ENSEMBLE PROVIDER SYSTEM CONTROLLER
Factum Data Casting

DBS100
DAB DATA BROADCAST SERVER

IPx-DAB
IP OVER DAB GATEWAY
Thank you for your attention!