

DAB+ Workshop



DAB Global Developments

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DAB+ Technology Overview

World DAB+ progress update

Business case for DAB+

Receiver profiles & types

Next Steps

[S-Comm Technologies acknowledges input to this presentation from previous presentations and sources including WorldDMB, CRA and S-Comm Technologies](#)



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DAB+ Technology Overview - Part 1

Core Technology



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Welcome to the DAB Family of Standards



One family provides the most cost effective delivery of digital radio and mobile TV



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The DAB Family of Standards



The Eureka Family of Standards

- DAB : 1995 Original audio with PAD and data services standard
- T-DMB : 2006 Added video services for Mobile TV and enhanced data streaming
- DAB+ : 2007 Enhanced audio service efficiency

Why DAB+?

One family provides the most cost effective delivery of digital radio and mobile TV

- 2.5 times more audio services than DAB due to the use of HE AAC+ v2
- Slightly better coverage – 1 to 2dB better than DAB – better FEC coding
- More flexibility for Programme Associated Data delivery
- PAD content has much stronger error protection



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DAB Standards

For detailed description of the DAB+ system refer to the following ETSI standards documents

- EN 300 401 Main document
- TR 101 496-1, -2, -3 Guidelines of use and operation
- TS 102 563 Transport of AAC audio



See <http://www.worlddab.org>
or
<http://www.etsi.org/standards>



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DAB+ Features



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DAB+ Features – Audio - Room for Lots of Services

Sydney

Perth

Brisbane

Adelaide

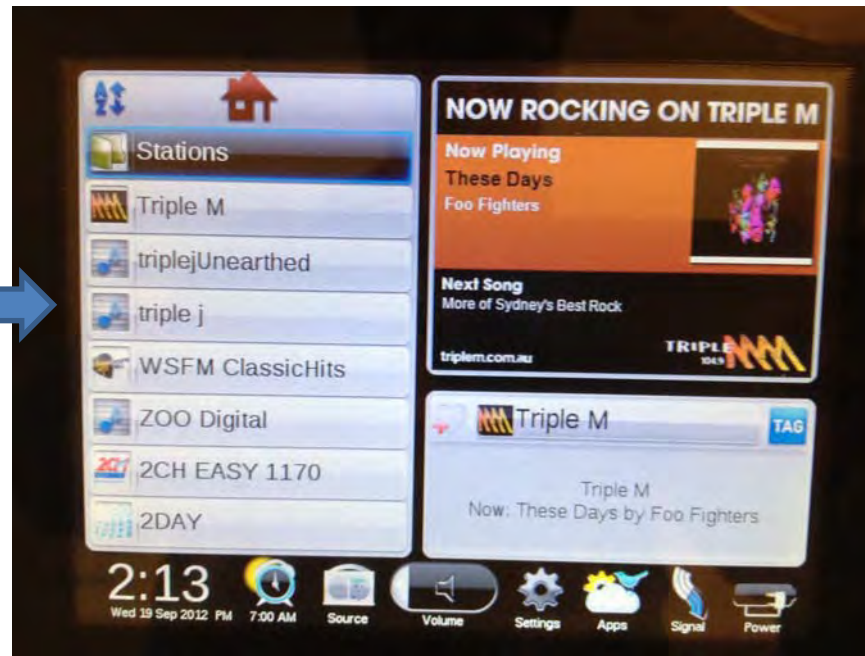
Melbourne

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Choose the station from a list

No more need to remember the station's frequency!!!

Station list



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PAD – Scrolling Text (Dynamic Label Segment)

Straight forward, effective

Limited to 128 characters per text segment

All DAB+ receivers have DLS

Good receivers should have options to vary scroll speed



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PAD – SlideShow (SLS)

Further strengthens the audio message

Standalone advertising during song items

Promotion of station activities, e.g. OB's

Traffic and weather reports

Race / betting and stock market information

Local news, happenings, community events



Next Race
12:47 Angle Park Greys Race 7

Tips by Jim Jacques

1. Twilight Fantasy	100	---
7. Genstone Rusty	85	---
2. Victa Anity	70	---
3. Knight School	70	---

Sky Ratings

1. Twilight Fantasy	100	---
7. Genstone Rusty	85	---
4. Suzy Tee	70	---
5. Battle Blitz	70	---



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Data Services

Electronic Programme Guide (EPG)

Now called : Service and Programme Information (SPI)

Very useful tool for promotion of programs, talent, competitions

Especially useful for multilingual national broadcasters with scheduled programme slots

Is flexible, can be station, network or ensemble based



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Data Services - Other

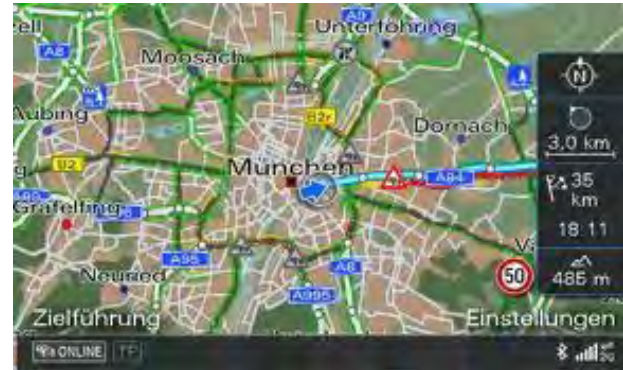
Traffic e.g. TMC and TPEG can provide up to the moment information on

- current traffic flow and congestion
- fuel locations and prices
- parking

Journaline

- Hierarchical categorised text service

Custom Applications



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Broadcast Features

Announcement Support

- Ability to command the receiver to deliver a different service
 - Traffic Announcements
 - News and Weather announcements
- User controlled / enabled

Emergency Warning System

- Ability to wake up receivers which are in standby
- Uses Announcements to force the receiver onto the Emergency Warning Channel
- Increasing activity to implement a common system

Service Linking and Following

- Provides link information between services and ensembles
- Receiver changes services under predefined reception conditions
- User controlled / enabled



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DAB+ Technology Overview – Part 2

Hybrid DAB+ Digital Radio

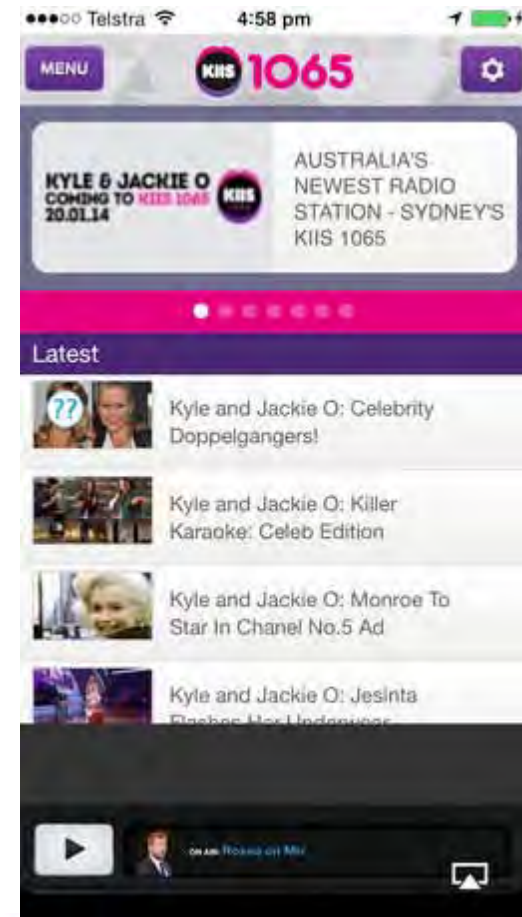


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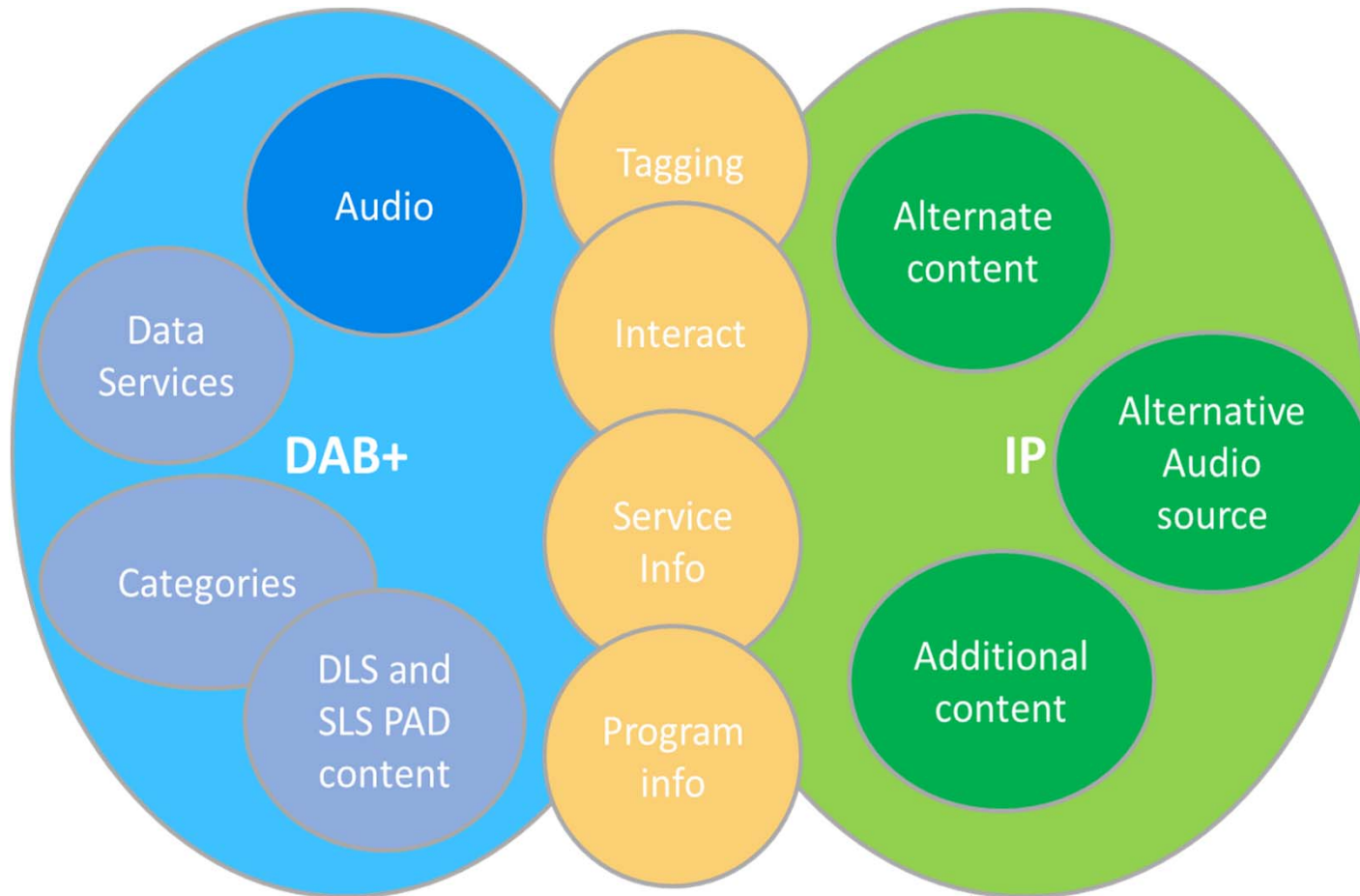


Broadcasters have invested in streamed radio services...



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DAB+ Hybrid Radio Ecosystem



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Hybrid Radio was very well received overall, especially by the younger and more tech savvy users

64%
find it appealing

"I would be able to listen more when out and about. I currently have to listen to purchased music when doing sport but would quite like listening to the radio to prevent getting bored of the same playlists." (Female, 19-24, non-listener interested)

"I like to listen to music and usually have music loaded onto the smartphone. This gives further variety." (Male, 16-18, non-listener interested)

67%
would be likely to use

Base : All survey respondents : UK 16-64 Internet users, smartphone owners, weekly radio listeners (1,009)



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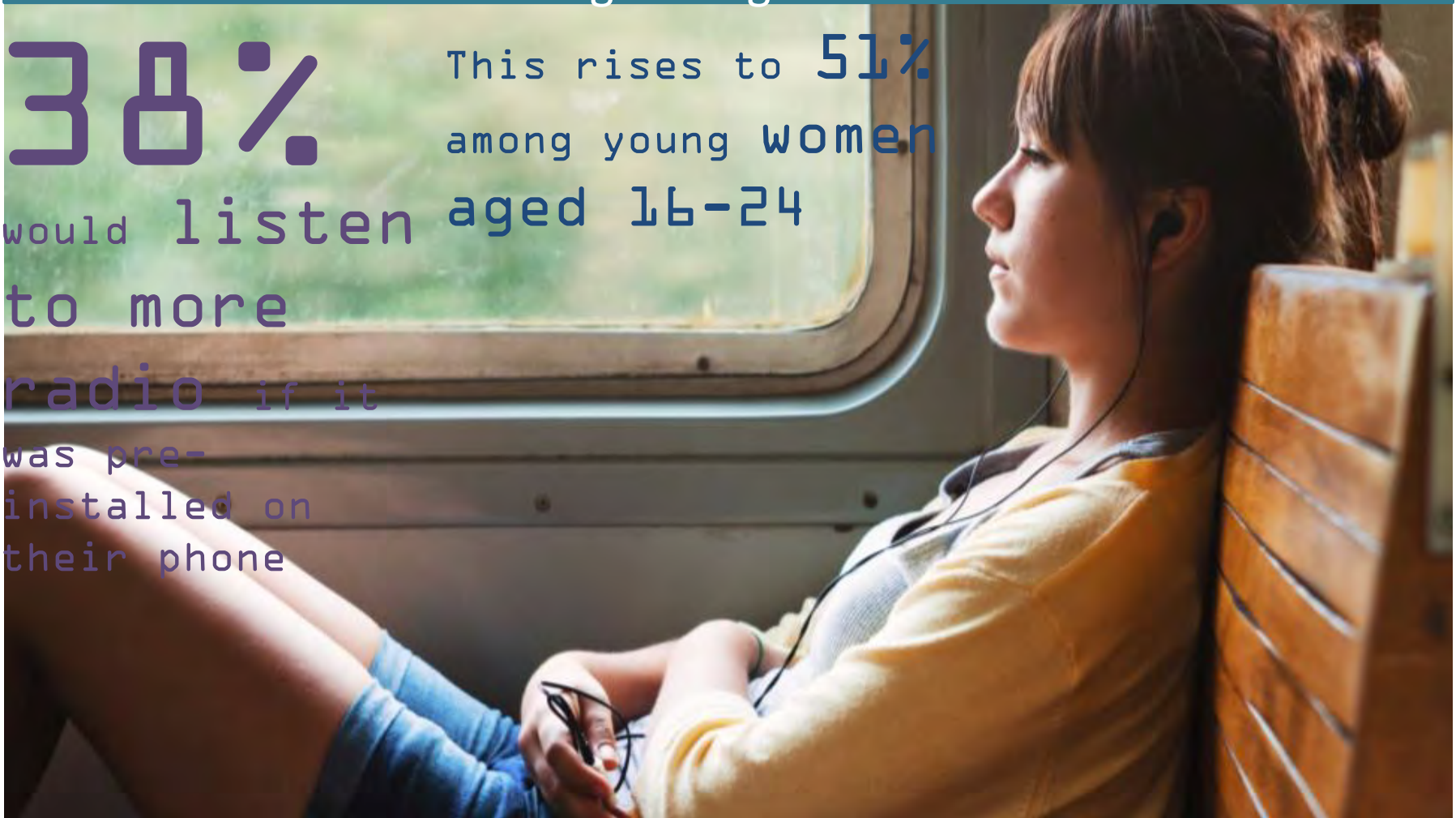
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Hybrid Radio has also the potential to increase general radio listening among all listeners

38%

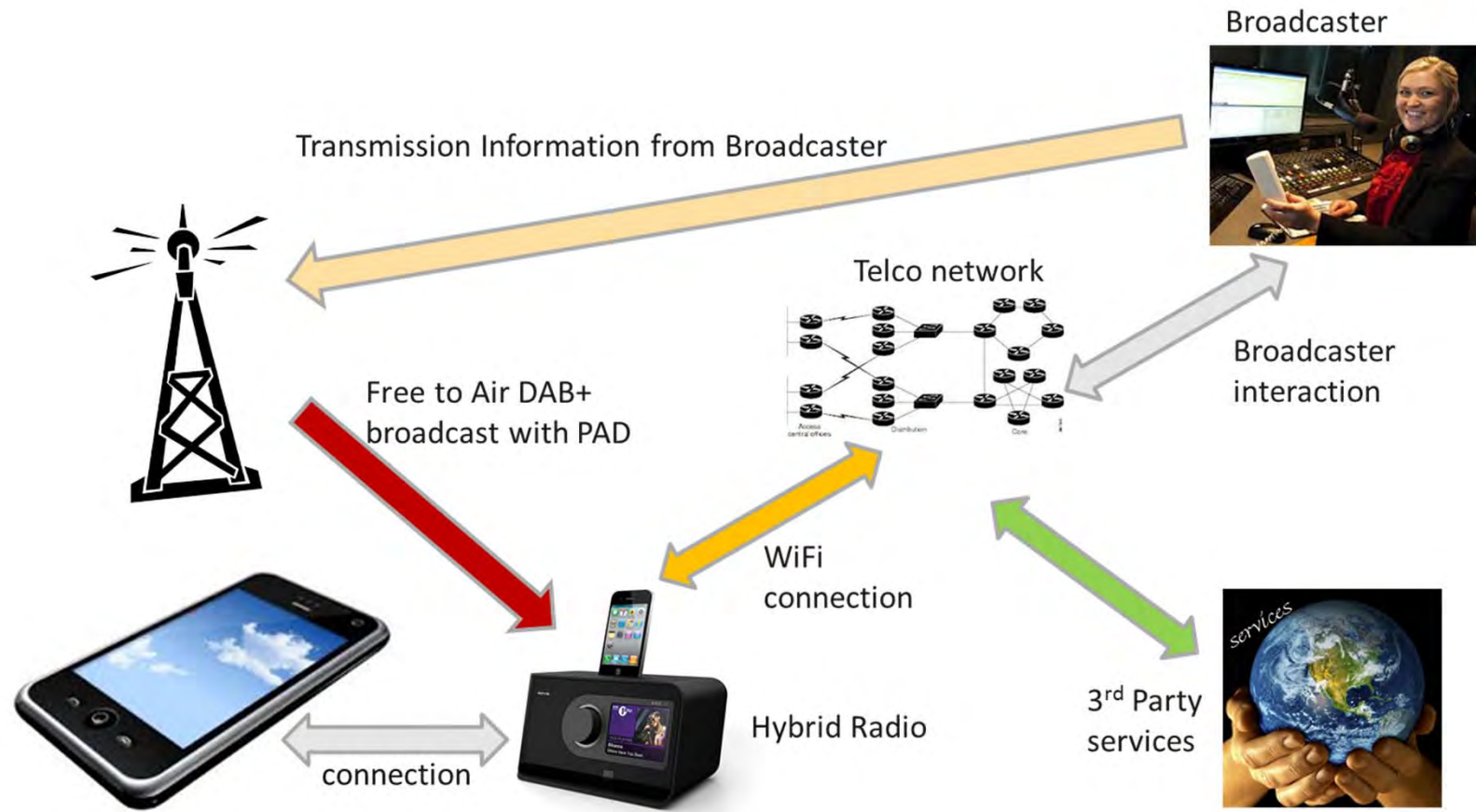
would listen to more radio if it was pre-installed on their phone

This rises to 51% among young women aged 16-24



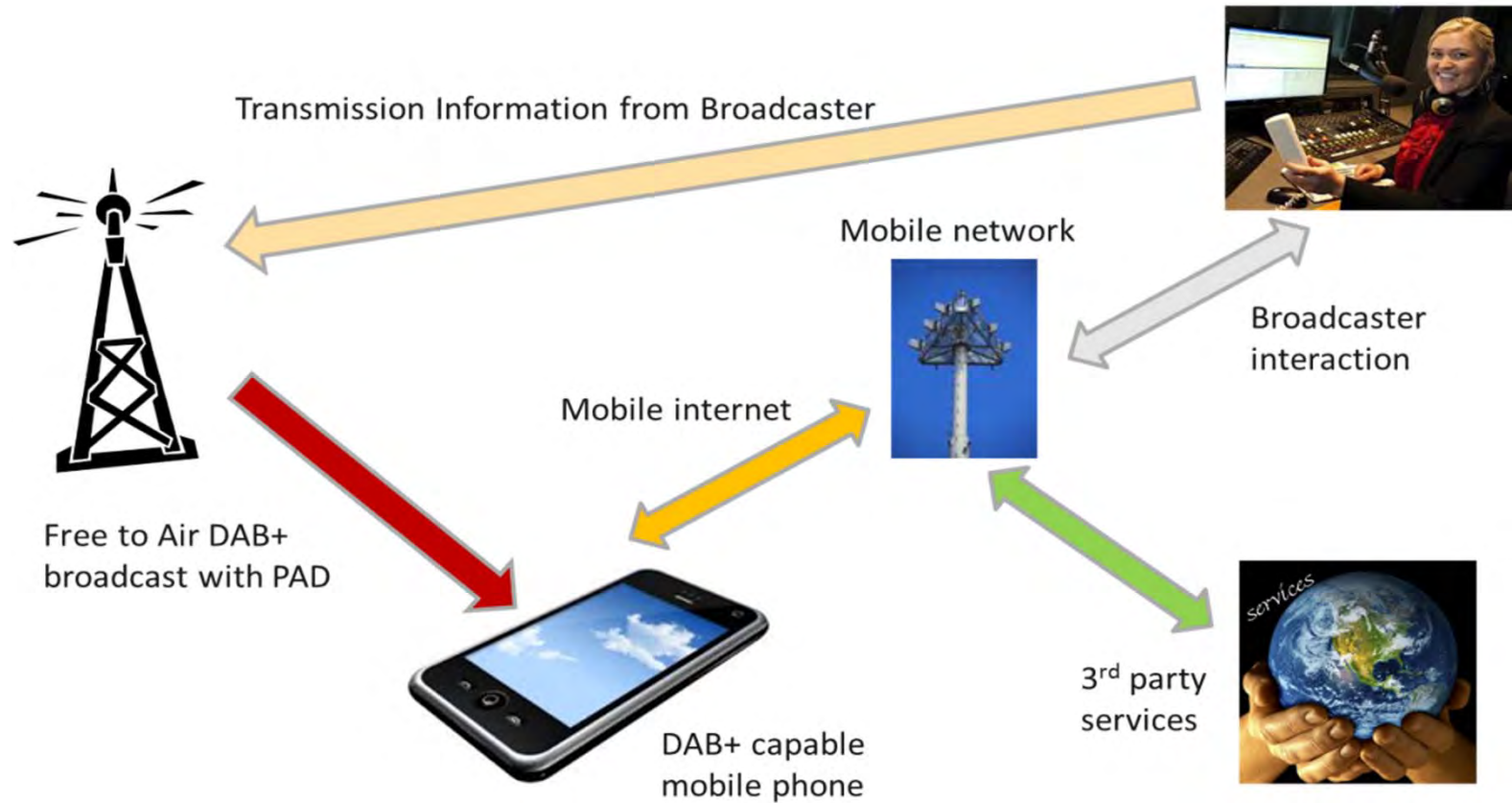
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DAB+ Hybrid Radio



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DAB+ Hybrid Radio



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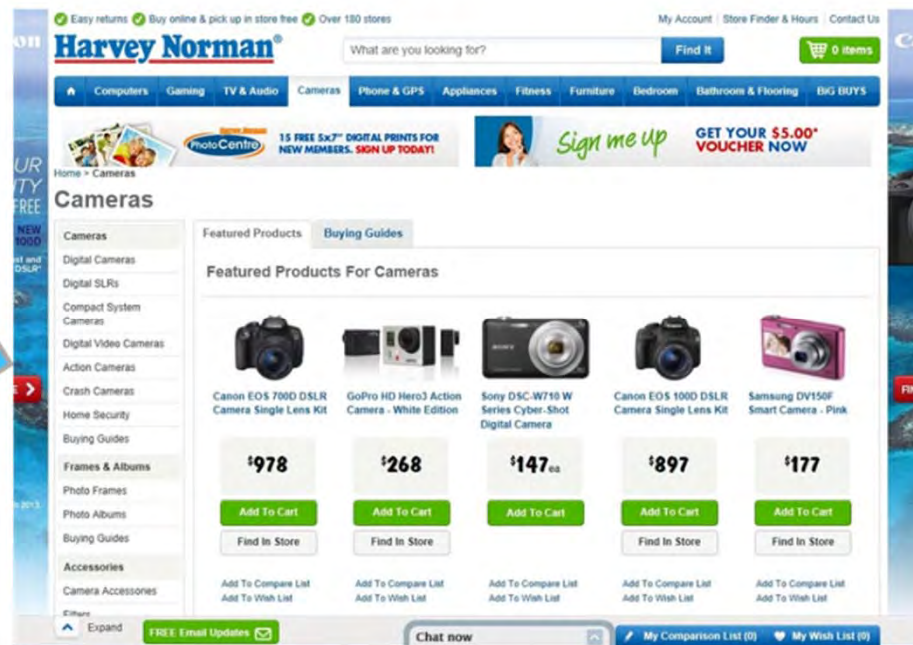
DAB+ Hybrid Radio – Service Discovery

Explore new content and services through hyperlinks



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DAB+ Hybrid Radio – Instant shopping!



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DAB+ Hybrid Radio – Engagement and measurement



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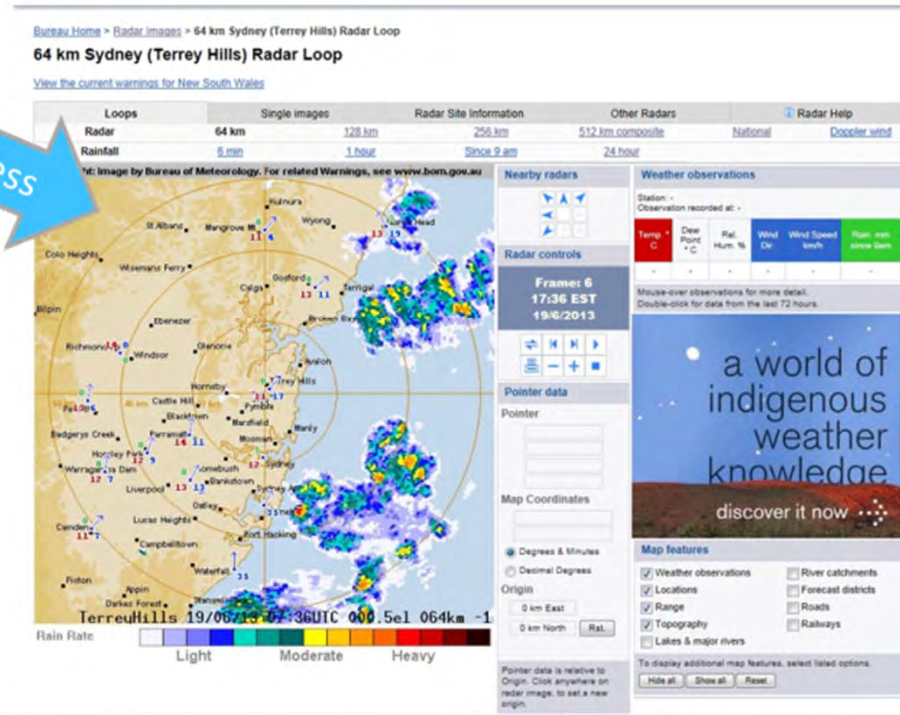
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DAB+ Hybrid Radio – More information



Button press

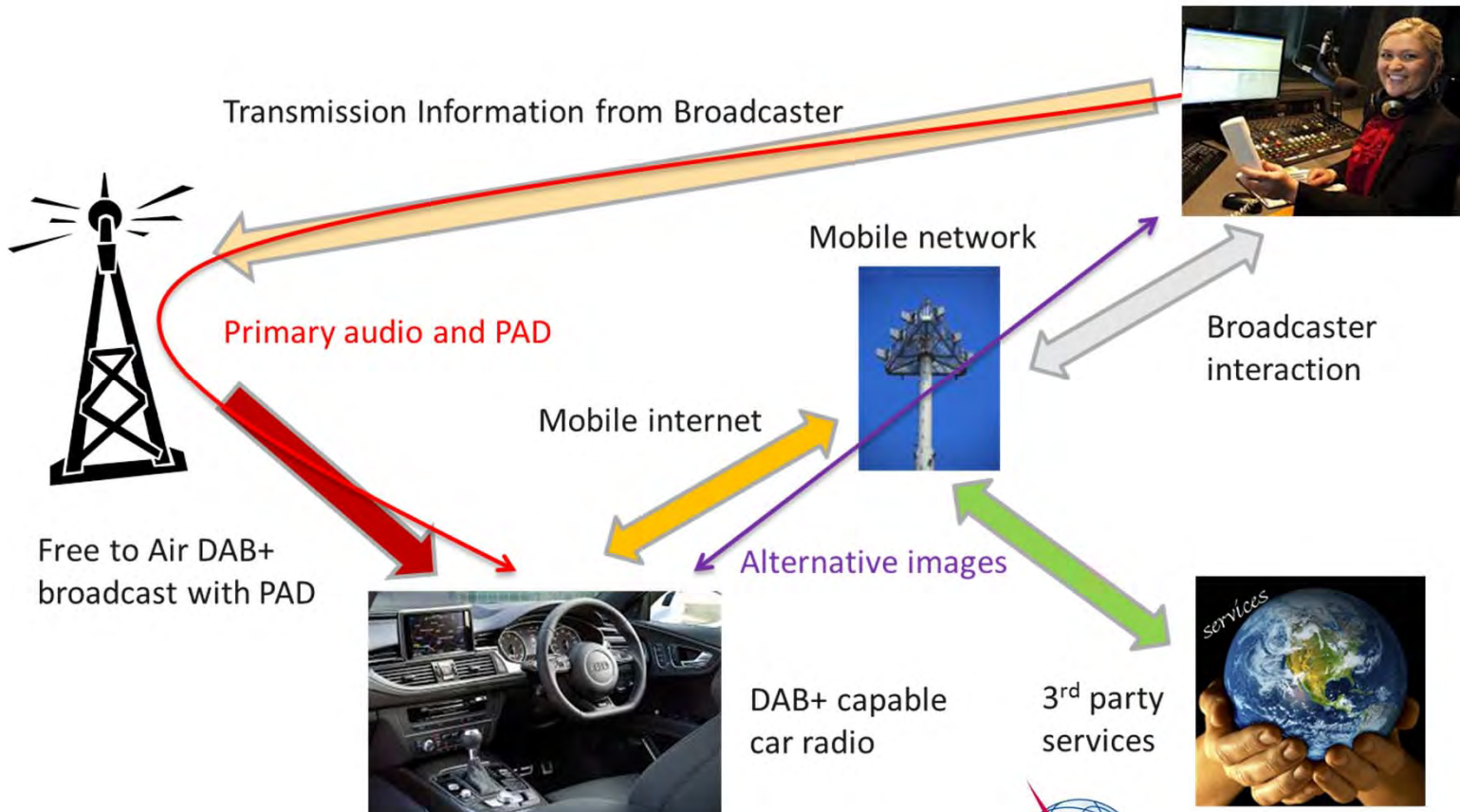
Accessing a website from a URL delivered associated with the information provided



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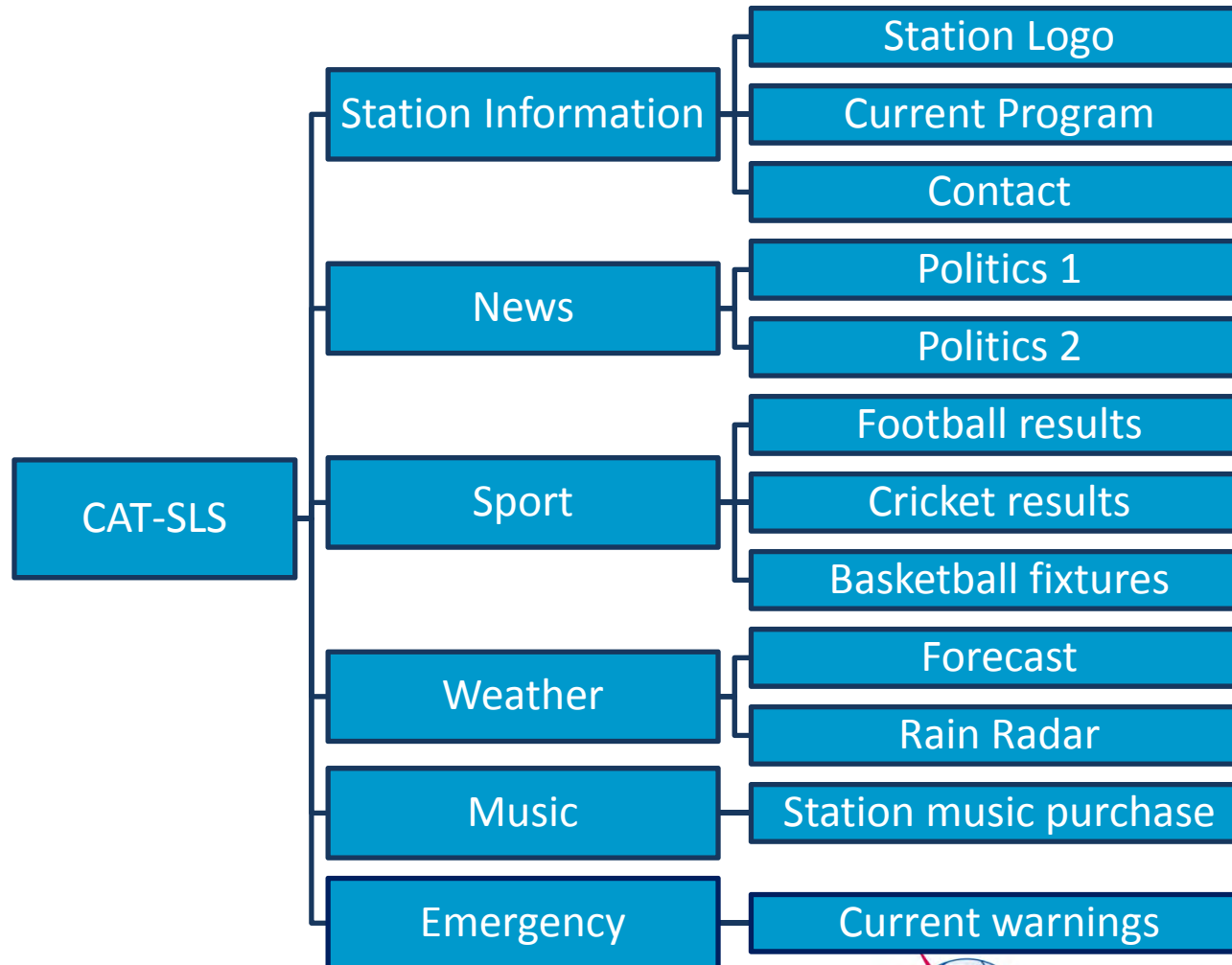
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DAB+ Hybrid Radio – Alternative content



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DAB+ Hybrid Radio – Categorisation



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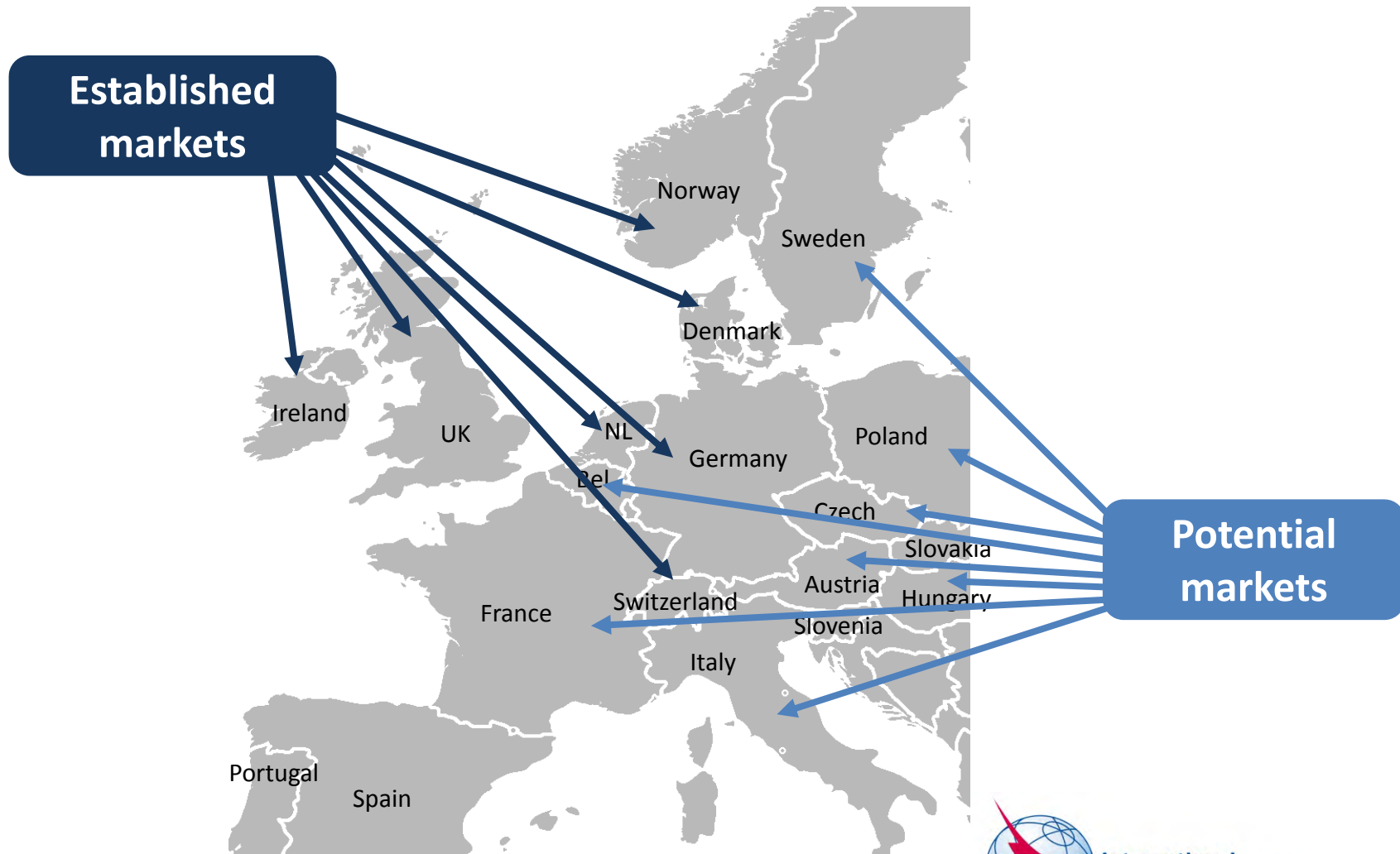
World DAB+ progress update



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Europe : Several potential markets



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Europe : Analogue Switch Off



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In Asia Pacific, a similar process is rapidly under way



Vietnam: DAB+ trial in 2013, workshops 2014

Thailand: DAB+ trial planned for 2015

Malaysia: DAB+ trials on air

Indonesia: DAB+ trial on air in Jakarta, Workshop 2014

China: DAB in Beijing & Shanghai

South Korea: DAB/DMB 60m considering DAB+

Hong Kong: DAB+ launch 2011

NZ: DAB+ trial on air Auckland

Australia: DAB+ launched July 2009



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DAB+ Digital Radio in Australia

DAB+ launched 2009

- five major cities + 2 trial cities
- 64% population coverage

1.9m devices sold (400k p.a.)

Radio listening on digital device

- Over 3 million people each week
- Over 24% of all listening
- 1.3m DAB+ listeners more than on internet
- 400 plus different DAB+ receivers on sale – from \$29
- Text, Graphics on all stations – inc 37 DAB+ Only Stations



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Automotive Industry in Australia

- 20 major vehicle manufacturers now offer DAB+ in vehicles
- Other brands expected to launch in coming months
- CRA best practice paper for automotive task force and manufacturers/OEMs
- 125,000 new cars sold with DAB+

Make sure your next vehicle has a DAB+ digital Radio.



Check www.digitalradioplus.com.au for aftermarket solutions.



digitalradioplus.com.au

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Business Case



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The competitive landscape for radio is changing

Online music services



- Digital music services
- Smart devices
- Competition for FM radio

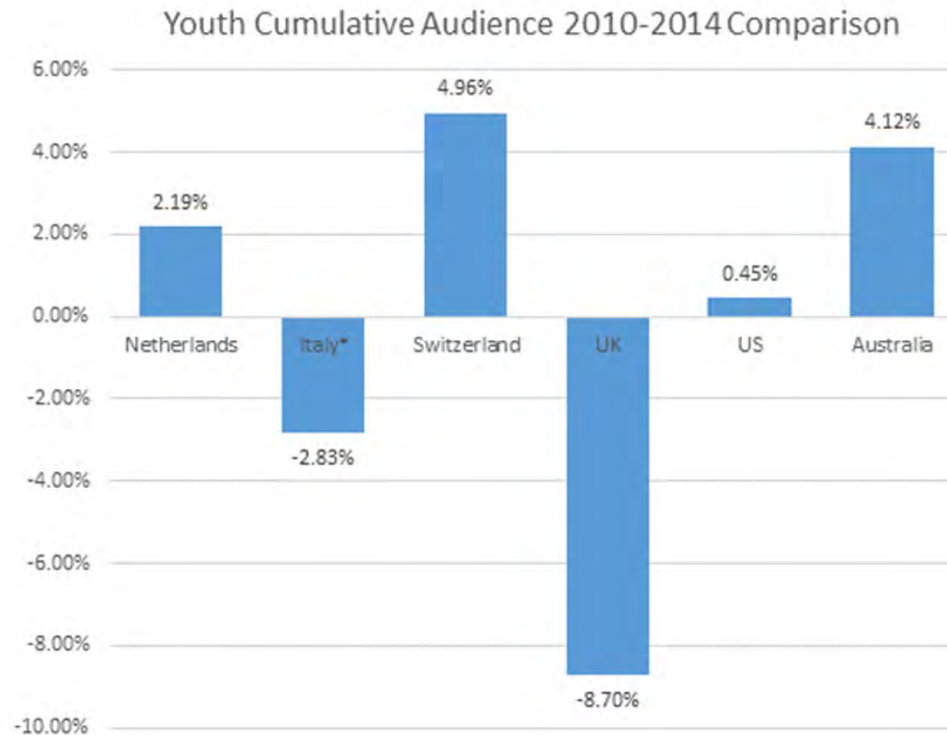


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Younger audiences are listening less??

Changes in youth per capita listening hours, 2010-14¹



GfK Netherlands Radio Ratings Jan -Aug 2010, 2014 All People 10-24, GfK Italy Radio Ratings 2012, 2014 All People 14-24, GfK Switzerland Radio Ratings 2010, 2014 All People 15-24, RAJAR Radio Ratings Q3 2010, 2014 All People 15-24, Nielsen US Radio Ratings Q3, 2010, 2014, All People 12-24, GfK Radio Ratings Australia S1-8 2010, S1-6 2014 All people 10-24,



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In many markets, FM spectrum is full



- **Overloaded airwaves**
- **No capacity for new services**
- **Difficult to innovate**
- **DAB+ on Band III a fresh new start**



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FM v DAB+ costs

DAB+ offers significant efficiency savings

Based on:

18 DAB+ services per ensemble
2.5kW transmitter / 25kW ERP

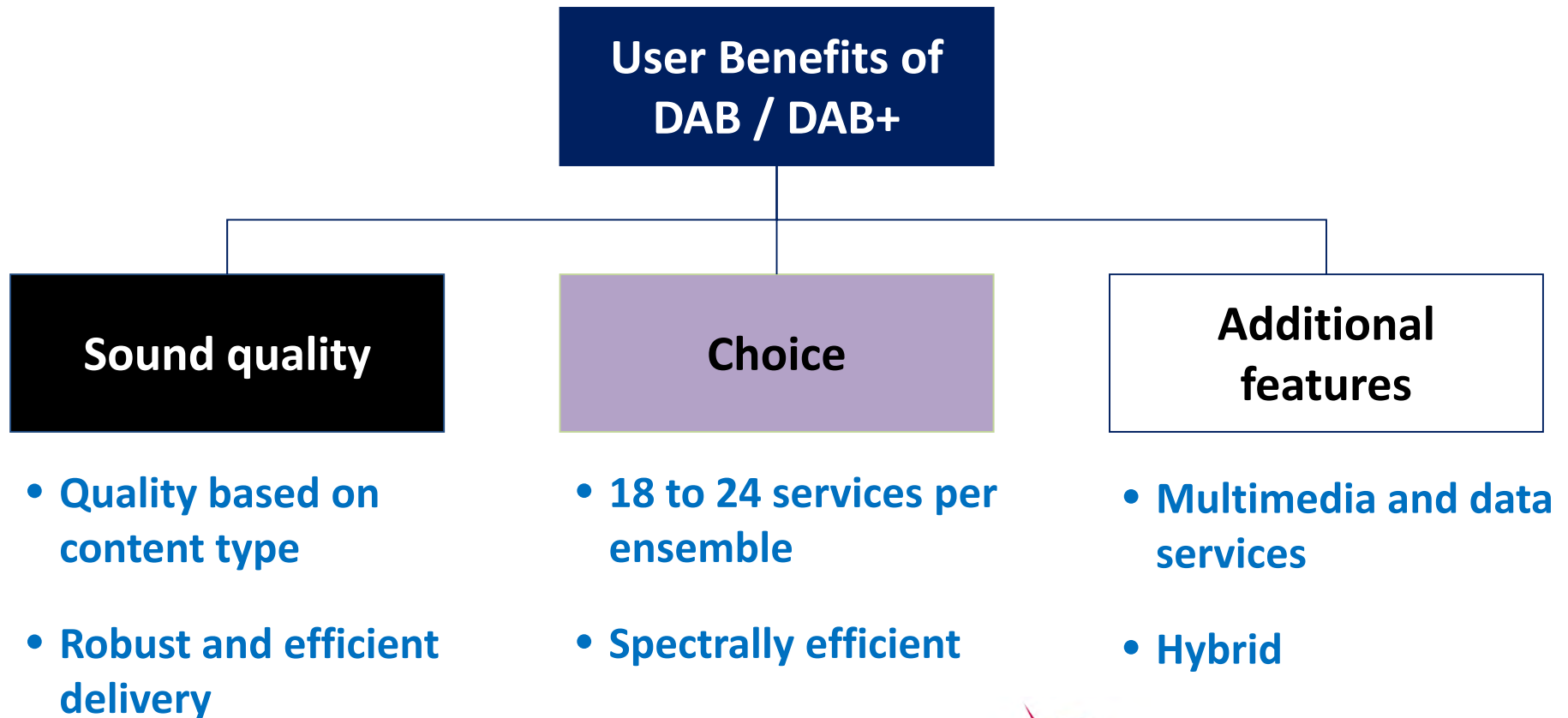
9 FM (or AM) services
10kW peak transmitter / 100kW ERP

Excludes costs for telco, insurance,
legal, operations

	Transmitter	FM			DAB+		
		Situation	Owned	Regional site	Metro site	Owned	Regional site
	Number of transmitters	9			1		
,000 USD	Capex: Cost of transmitters	450			80		
,000 USD pa	Opex	9 FM services			18 DAB+ services		
	Power	81.5			8		
	Cooling	22.5			5		
	Space	45	315	675	5	35	75
	Maintenance	45			50		
,000 USD pa	Total Opex all sites	192.5	462.5	823	68	98	128
	Annual cost per FM site	21.4	51.4	91.4			
	Ratio one FM / 2 DAB+	2.83	4.72	6.43			

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Digital radio offers solutions



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DAB+ Receivers



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The market is ready

over 400 consumer devices available

Prices from
\$25



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The market is ready

All varieties of receivers



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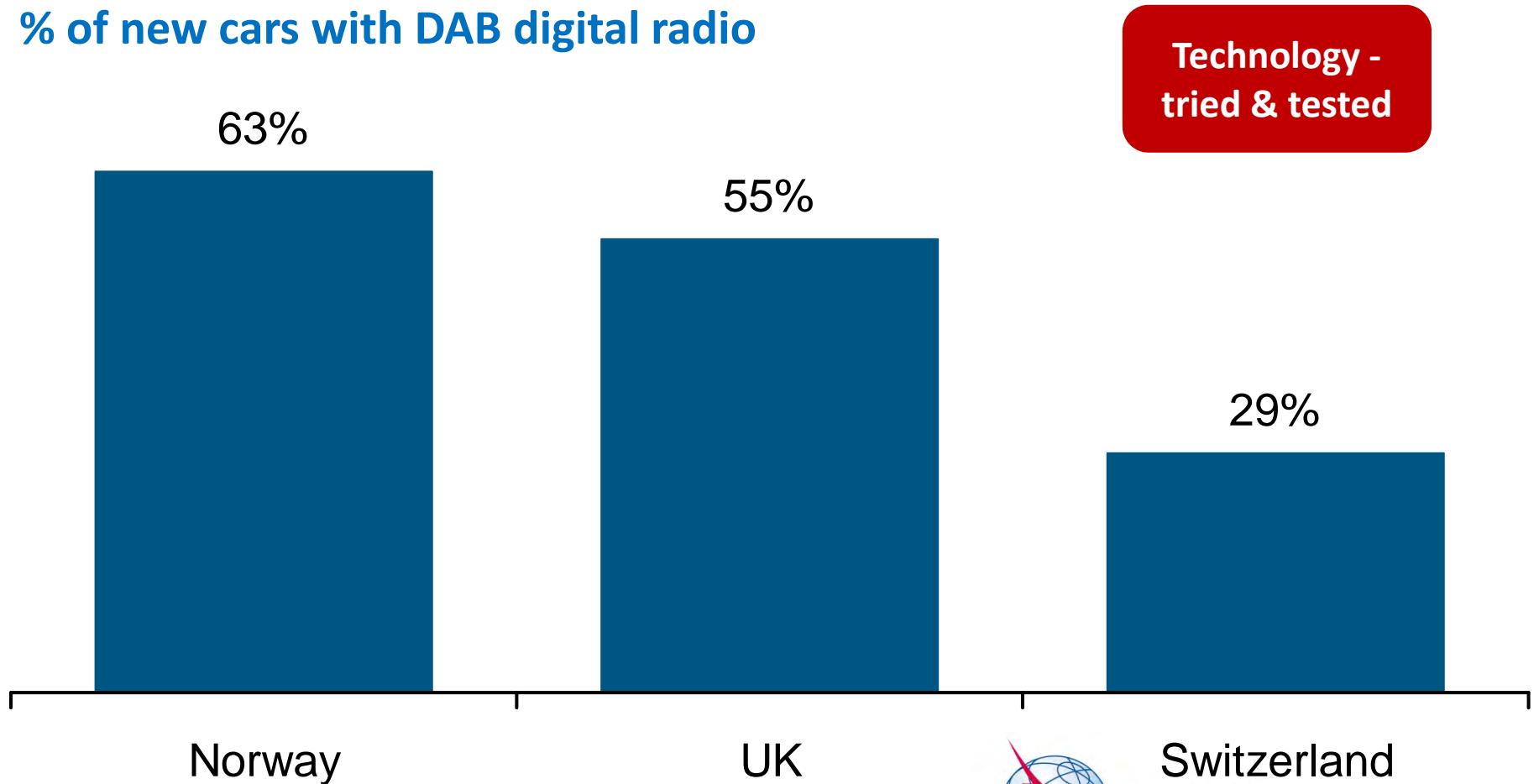
The automotive sector is ready



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DAB in new cars becoming the norm

% of new cars with DAB digital radio



Source: Digitalradio Norge, DRUK, MCDT



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DAB+ and Smartphones

- An Australian study into the ability of mobile networks to cope with radio audiences streaming has shown
 - If all radio was listened to on 3G or 4G networks – the capacity for other uses would be severely impacted
 - Even 4G in broadcast mode would not provide the solution
 - The cost of building out every telco network is prohibitive – people would not want to pay for radio
- This study supports the Swedish and German studies
- CRA works with broadcasters in Europe to encourage handset makers to incorporate DAB+



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DAB+ Receiver Profiles

	Portable	Vehicle
Profile 1: Standard Radio Receiver	Band III DAB+ 1 Service decoding Basic display DLS	TPEG TMC FM Service Following DAB Service Following
Profile 2: Rich Media Radio Receiver	4 service decoding Colour screen and SLS DL+ SPI Journaline BWS	TPEG TMC FM Service Following DAB Service Following
Profile 3: Multimedia Receiver	H.264 video decoding BSAC audio SLS+ Packet data	



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The road is long.....



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Broadcasting Unions calling for international approach

EBU

EBU recommendations

- Digital broadcast backbone¹
- Devices to offer analogue & digital²
 - consumer
 - automotive
 - smartphones
- Harmonisation across Europe

- Harmonisation: create scale / accelerate market development
- Key requirement of manufacturers
 - automotive
 - consumer receivers
- Digital broadcast the best way to make radio “fit for purpose” in 21st Century



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Note: (1) Recommendation R138 <https://tech.ebu.ch/docs/r/r138.pdf>

(2) Euro-chip / smart radio initiative: <http://www3.ebu.ch/cms/fr/sites/ebu/contents/programming/radio/digital-radio/welcome-page/about-euro-chip.html>

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DAB+ Next Steps – Engagement

Government and Regulators

Suppliers

Advertisers

Retailers

Automotive



Thailand Automotive
Production 2004-2013



Source: FTI, Thai Autobook Research



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The future



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Thank You

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