Update · **Digital Audio Broadcasting**

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Radio, with images

S&T Tech.

DAB is set for a multimedia boost after some patchy development, writes **George Cole**

Then: In 1996, many broadcasters and electronics companies were gearing up for the launch of a format designed to take radio in to the digital age: Digital Audio Broadcasting or DAB.

DAB, which grew out of a European technology project known as Eureka 147, transmits sound as a computer code rather than as an analogue wave. The result is interference-free sound, whose quality approaches that offered by the compact disc.

A number of consumer electronics companies, including Philips, Sony, Panasonic, Pioneer and Grundig were planning to launch DAB receivers around the end of 1997, and various broadcasters were aiming to introduce DAB services around this period.

Although DAB is primarily an audio medium, it can also carry multimedia services which could include text, data files, graphics, pictures and even moving video. Eighteen months ago, the German electronics company Bosch and telephone company Deutsche Telekom transmitted motion video pictures to a fast-moving car via a radio network. The results showed that DAB was capable of broadcasting good quality pictures, even under adverse transmission conditions.

Now: DAB has moved from the European arena on to the world stage. The European DAB Forum, which represented broadcasters, electronics manufacturers, regulators and service providers has changed into the WorldDAB Forum, with more than 100 member organisations. DAB services, pilot projects and test transmissions are taking place in many countries including Australia, Canada, China, India, Israel, Mexico and most of Europe.

DAB was officially launched at the Internationale Funkausstellung (IFA) consumer electronics show in Berlin this August. A number of broadcasters and manufacturers are promoting DAB under the banner of Digital Radio, which is considered to be a more consumer-friendly name.

Around 15 manufacturers displayed DAB products at IFA, but most were prototypes and few companies will have production models on the market before 1998 – with receiver prices expected to be around £2,000 each. Even more disappointing has been the lack of national DAB services, which are available only in a few parts of Europe, including Belgium, Scandinavia and the UK.

The BBC began its DAB service around the London region in late 1995, and plans to extend coverage to 60 per cent of the UK population early in 1998. Glyn Jones, director of digital radio at the BBC, says: "Broadcasters tend to be a little conservative, but I'm sure the number of manufacturers displaying DAB receivers at IFA will have given many of them greater confidence in digital radio."

But if the existing number of DAB receivers and services is disappointing, the same cannot be said for the development of DAB as a multimedia format. "The idea is to use multimedia to bring something extra to a radio programme," explains Mr Jones.

The BBC has been running a series of multimedia radio tests, including a science radio programme on chaos theory. Radio listeners could hear a scientific discussion and see a series of fractal patterns on a computer screen. The BBC has also experimented with radio sub-titling.

But some are concerned that adding pictures and graphics to a radio programme will simply turn it into a poor relation to television: "We're trying to get broadcasters excited about using multimedia, but the emphasis is on enhancement and not replacement," says John Trowsdale, general manager of broadcast radio at the communications company NTL. Mr Trowsdale says multimedia radio could be of particular interest to advertising agencies and the music industry: "Imagine you're broadcasting a song by [the pop group] Oasis and on your DAB receiver you can also see a picture of the group and the latest tour information," he says.


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The wireless with moving pictures

Digital multimedia broadcasting could open a new era of sound and image transmission, writes George Cole

In the Berlin-Brandenburg region, DAB has been used for carrying tourist and travel information to PCs and terminals. Radio France has been using DAB to send data to personal computers. The Swedish national radio broadcaster Teracom has used multimedia radio to transmit traffic information to cars equipped with multimedia DAB receivers. The information includes a digital map showing traffic conditions, and the system could be extended to allow drivers to book parking spaces ahead.

"We would like to see PC manufacturers build DAB cards into their machines, and we are currently in discussions with them," says Franc Kozamernik, World-DAB project manager. The German company TechnoTrend has produced a PC DAB card costing DM2,000 (£687), while Grundig has developed a prototype DAB data terminal for in-car systems.

Some believe the business sector will be an early user of multimedia radio: "The DAB audience

will initially be small until the receivers come down to mass market prices, so businesses could provide an early return on the investment in digital radio," says Alec Thomas, an audio consultant based in London.

Great Western Radio (GWR), the UK independent radio company, is running a series of multimedia radio test transmissions around the London region. One involves the financial and stock market information company Tenfore, which is using DAB to transmit real-time share price information to PCs.

Another European technology project, Memo (Multimedia Environment for Mobiles), is investigating the use of DAB and the GSM digital phone system as a data delivery system to portable and mobile terminals, such as notebook PCs and public transport information terminals. The Memo project includes electronics companies, research centres and media groups, including Bosch, Ericsson, Le Monde and the University of Nottingham.

"DAB is a good medium for data delivery. It is robust and over 40 times faster than a telephone modem," says Wolfgang Klingenberg, Memo's project manager. One project used DAB to deliver data files to workers on a construction site in Rennes, France. The data, which included building plans, were received on a notebook PC.

The Memo project ends in 1998: "We will see many products and services emerging from our work, the potential is huge," predicts Mr Klingenberg.