Bob Greeney, ABA Director Technology attended the Digital Sound Broadcasting Seminar and Workshop of the Asia-Pacific Broadcasting Union in Kuala Lumpur, 31 July to 4 August 2000.

Digital sound broadcasting

Bob Greeney, ABA Director Technology

This is Mr Greeney's final report for ABA Update. He has left the ABA to join TX Australia as Engineering Manager and will be working to get digital television operational.

ABU: Asia-Pacific Broadcasting Union;
AIBD: Asia-Pacific Institute for Broadcasting Development;
HBF: Hoso Bunka Foundation of Japan (a philanthropic organisation that supports the ABU and its members);
ITU: International Telecommunications Union.

An important milestone was reached in the Asia-Pacific Region, in the consideration of options for digital radio broadcasting at a seminar sponsored by the Asia-Pacific Broadcasting Union, the Asia-Pacific Institute for Broadcasting Development, Hoso Bunka Foundation and the International Telecommunications Union. Member countries of the ABU have all indicated their interest in proceeding to implement digital radio in their countries. Representatives from 36 countries in the Asia-Pacific Region (including Australia) attended this seminar and the two-day workshop that followed.

The seminar and associated workshop were sponsored to help broadcasters in the Asia-Pacific region to make decisions on system choices and to plan for the introduction of digital radio broadcasting services as smoothly and as cost-effectively as possible.

Mr Hugh Leonard, Secretary General of the ABU, opening the seminar suggested that it is not a question of 'if' but 'when' countries introduce digital technology to radio broadcasting services. He added that digital radio would justify its existence if it makes a service that people in the region already consider essential, more useful through provision of added services such as data and interactive services. He noted the dilemma for decision makers because of the multitude of emerging digital radio standards that broadcasters face. American and European standards are in place and a Japanese standard is close to being adopted. At least two proposed standards for MF and HF digital radio are being developed as well as at least two methods for delivering satellite digital radio services.

The Chairman of WorldDAB, Michael McEwen, highlighted the developments of the DAB™ system (Eureka-147 digital audio broadcasting), outlining its adoption in Britain, Europe, Canada, Singapore and Malaysia. He noted that DAB™ has been implemented successfully at VHF (Band III) and at L-Band (1.5 GHz). Mr McEwen spoke about the falling prices of DAB™ receivers, their improved availability in new cars and the importance of portable hand-held receivers.

Options for conversion

Options available for broadcasters considering conversion to digital radio formats included: updates on Eureka-147 (receiver availability and costs are still an issue); the Japanese ISDB-Tn developments (nothing new at this stage); WorldSpace developments (now operating in Africa, with a satellite launched for Asia and another scheduled for the Americas — receiver costs, around US$300, seem to be an issue for many countries); digital radio options for the MF and HF bands (developments in In-Band-On-Channel AM systems, and the Digital Radio Mondiale (DRM) system); and a paper from USA Digital Radio about FM-IBOC systems (note that USADR has merged with Lucent Technologies to form iBiquity Digital Radio

Innovations

in the USA — the merger of the two technical proposals was a pre-requisite for acceptance by the US Federal Communications Commission).

Discussions covered likely new program services, multimedia and interactive services, data services, as well as commercial opportunities and applications for satellite services in India. There was also an update on system trials and choices in Australia, Singapore, China, India, Iran and Malaysia.

A number of speakers noted the need for new content, not just 'digitalisation' of analog radio, in order to deliver the content that the consumer wants. Discussion covered production techniques for new types of services and data applications. In general, digital radio options include innovative radio programming ('radio with pictures'), multimedia and interactive content.

The advent of audio streaming and MP3 audio services over the Internet led to discussion about offering radio programs over the Internet: the need for higher data speeds, available streaming technologies, the European experience in digital broadcasting and webcasting, and a new application for DAB™: digital multimedia broadcasting introduced by WaveNewMedia of Singapore (using a whole DAB™ ensemble for data with no provision for radio broadcasting).

Transition issues include frequency availability for the various options. Countries implementing digital television broadcasting in timeframes similar to DAB™ digital radio need to decide whether VHF Band III (174 MHz to 230 MHz currently occupied by television channels 6 through 12) should be made available for the new radio or television services — perhaps some sort of frequency sharing arrangement should be considered. There was also a question on the regulator's role in managing the digital players: service licensing and spectrum access, transmitter and multiplex licensing, minimum data required for radio broadcasting versus value added data or multimedia services, and use-it-or-lose-it provisions on spectrum access.

Workshop

The workshop offered a forum for senior managers to share experiences and knowledge as well as to explore new insights into policy and management related issues relevant to implementation of digital radio broadcasting.

The main issues covered were the risks in applying regulations applicable to almost obsolete analog technologies to digital technologies, impeding the implementation of digital technologies and their potential application for new services and added facilities. New regulations are needed to promote a healthy competitive digital radio broadcasting environment.

A model project plan was developed for implementation of digital radio services. This plan outlines technical issues, frequency availability, costs, time-scales and return on investments. The workshop also considered the Human Resource aspects of the introduction of new technology. Discussion centred on the demands for training staff for new skills in production, presentation and transmission.

Consideration was given to potential new revenue streams that might be available to finance digital radio broadcasting transmission and digital services. The work considered some of the various financing options for the conversion of analog radio services to digital and potential new revenue streams that broadcasters might benefit from.

Conclusion

There a number of key lessons to be learned from experience of the early adopters and implementers of digital broadcasting. Firstly, it is essential that broadcasters consider the requirement for new data applications as well as the broadcasting requirements in a digital environment. In addition, there is a need to:

- think about minimum capacity for broadcasting services to ensure that consumer needs for broadcasting services are met;
- consider implementing a use-it-or-lose it regulatory approach to avoid hoarding of spectrum to block competition where this is a possibility;
- consider a balance between competing users of similar spectrum, i.e. digital television versus digital radio using (or sharing) VHF Band III television spectrum.

In addition,

- administrations should consider involving retailers in plans for digital services from the outset;
- regulations for digital services must not inhibit the opportunity to use the new technology efficiently — existing regulations may not always be suitable for the new technologies (i.e. multi-channel services, carriage of data in a broadcasting channel, interactive services);
- governments may need to be the driver of digital technology, if it is to be a success in the early years. Broadcasters may have vested interests such as protecting themselves from additional competition, or concerns about limited revenue streams;
- regulatory models need to be developed that ensure the take-up of new technology;
- multiple standards may be necessary, such as Eureka-147, IBOC and DRM. Each is suitable for different applications and frequency bands. No single standard will be capable of being used to convert broadcasting services using the AM, HF and FM bands to digital — however, this is no different from the circumstances that exist for AM and FM analog radio broadcasting services today; and
- some new technologies allow the introduction of new services in new bands e.g. WorldSpace and Eureka-147.

The ABU-AIBD-HBF-ITU seminar and workshop provided a timely and important forum for countries in the Asia-Pacific Region to learn more about the available and emerging digital radio broadcasting technologies and the issues to be considered in choosing one or more of those technologies for broadcasting services in their area(s).