Digital radio: are we ready?

Digital radio is coming. At least, that's what some people think. At the moment, it is still in a fairly formative stage in Australia. There is a technology available which can deliver it (known as 'Eureka 147') and some spectrum which would be able to accommodate some of it (the 'L-Band'). But there are a lot of complicated issues to consider first.

'Digital radio', as it is being talked about at the moment, refers to the *distribution and reception* of digital signals - digital equipment is already used extensively in the *production* of radio programs which are then transmitted.

It's potentially a huge consumer issue because there are 29 million radio receivers in Australia, according to George Paterson. Some 76 per cent of Australian homes have four or more of them.

Digital radio requires new receivers. Depending on how we choose to introduce it, it may make all of those existing receivers redundant. That's not just a consumer issue - it's a waste disposal issue.

There are several potential benefits from digital radio broadcasting.

Improved signal quality

Digital radio promises a better quality signal in a number of ways. First, the absolute quality of the signal is said to be better than FM. Also, the capacity to vary the quality of the signal, say, to permit one high quality channel of fine music to be transmitted at one point in the day and two channels of lower quality talk at another time, gives a new kind of flexibility. Finally, the digital signal is more robust. That is, everyone in a service area should receive as good a signal as everone else, rather than face the problems which confront particularly FM, with its high levels of interference, particularly in central business districts.

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More choice

The use of new parts of the spectrum and the capacity to transmit more than one 'channel' in the same signal mean digital radio can provide more services. It might do this in at least four ways. Most simply, the capacity it provides for additional channels could be filled by retransmitting services from elsewhere. These might be ABC or SBS radio services intended for national audiences or international services, or special interest services which are currently transmitted only in the major cities but which are of relevance to special interest communities outside them.

Additional capacity means existing programs could be scheduled differently. Services might also be *enhanced* by the provision of additional information (eg the name of individual songs and the artists could be displayed on the radio receiver). And the spectrum currently proposed for use by digital radio might have a major use for data services as well as traditional 'radio' services.

Mobile and remote reception

Digital radio transmitted by satellite promises to be capable of being received with small mobile antennae which could be fitted to vehicles. The smaller antennae will also permit the flexible location of radio receivers within the home. However, the capacity to deliver what is technically possible is crucially influenced by the cost of doing so. At this stage, we are still some way off clear ideas of what is going to be economically possible to deliver to comparatively small audiences in regional or remote areas.

Operational efficiencies

Digital radio requires lower ongoing transmission costs and uses the spectrum more efficiently. However, radio stations funded by government or advertising cannot pass on these lower costs directly to consumers. It is more likely they would spend the money saved on enhanced or additional services.

Convergence with other media forms

The capacity for digital media to be received and manipulated in the same place - a computer - is much remarked upon as one of the central features of emerging media. How much use will be made of this facility in relation to digital radio depends entirely on the kinds of new services which are made available.

Why not?

All this seems to add up to a very wide range of potential benefits from the introduction of digital radio - better radio, more radio, the ability to receive it in places you never got it before, cheaper, and with the ability to do things with it you could never do before.

So, why wouldn't we want digital radio?

Firstly, because audiences won't be able to receive digital services without buying new digital receivers. If existing services migrate to digital

transmission, audiences will be required to purchase new equipment to listen to services they already receive.

Secondly, the transmission characteristics of L-band signal mean that without additional transmitters, radio services will not reach precisely the same areas as are currently reached by AM and FM.

Thirdly, broadcasters will need to invest substantial amounts of money in new transmission infrastructure.

Fourthly, the introduction of new services will fragment revenues from existing broadcast markets with unpredictable consequences for the quality of programs they are able to support.

Finally, introduction of digital radio may have consequences for other existing communications services. These include, particularly, the telephone services provided to customers in remote areas through Telstra's digital radio concentrator services, which use parts of the L-band.

So the potential advantages and disadvantages of digital radio provide a complex set of issues for policy-makers. Importantly, the developing nature of the technology and the very uncertain economics of the new services make the policy choices difficult. It is very likely that some decisions cannot or should not be made in the short term. The positions that are taken should envisage a range of scenarios in the development of this and other media technologies, audience tastes and communications economics.

Some of the most critical issues include the possible mandating of digital transmission for all radio services, the impact for country audiences, rules about who will be able to use the new transmission system and new regulatory structures.

Mandated technology?

Do we expect digital transmission to be the only way we will be receiving radio at some point in the future, however distant? This long term issue is crucial for framing the short term decisions about how the first digital radio services should be introduced.

The scale of consumer investment in radio receivers, and the importance of radio reception to the community, make it essential that policy decisions contemplate a very substantial transition period during which existing services will continue to be received on AM or FM.

Impact on remote and regional audiences

Considerable work needs to be done to assess the cost to broadcasters and audiences of new services to remote and regional audiences. It is essential that additional broadcast services do not compromise the range of telecommunications services already provided to these audiences.

Who gets to play?

Existing radio operators and new players should have the opportunity to participate in developments in digital radio. The precise mix will depend on the number of channels which are technically available and the time period over which they become available. It is particularly crucial that all three established sectors of the radio industry - community, commercial and national - share in the new opportunities, alongside new players such as narrowcasters.

New regulatory structures

Digital radio tests traditional regulatory arrangements centred upon broadcasting, radiocommunications and telecommunications activities, because it borrows elements from all three of these systems. While overseas jurisdictions have already made decisions about regulatory arrangements for these new media, much more work is needed before final decisions can be made in Australia about the shape of regulatory arrangements.

Processes

A number of policy, regulatory and consultative processes are relevant to decisions about digital radio. The previous federal Government established a Digital Radio Advisory Council with representatives of interested parties, to advise the Minister on policy.

The complexity of the issues raised suggests that the current legislative mechanisms for the planning and allocation of new radio services may not be adequate. What is likely to be required is a *politically negotiated process* which may involve significant legislative amendments.

Technological determinism

Communications policy processes are often criticised for being 'technologically determined' - that is, they are driven by particular technologies rather than human and social needs and interests.

The current debate about the introduction of digital radio is, in a sense, absolutely technologically determined. We are having it because of the invention of the Eureka 147 technology which provides an immediately available means for the delivery of digital radio.

An invention is not of itself reason to move ahead with it. It is a reason to examine, and plan. But it is the social, cultural and economic issues we discover in that examination and planning which must provide the answers about whether and when and how. ❑ *Jock Given*

This is an edited version of a paper delivered to a recent AIC Conference on Digital Broadcasting. The CLC would be interested to hear from radio listeners interested in participating in a forum about digital radio.