2

Digital television in Australia

2.1 This chapter considers the benefits of DTV and the motivation for its introduction in Australia. An overview of the policy and legislative framework governing DTV rollout and analogue switch-off is provided, along with recent Australian Government reviews into DTV and broadcasting issues.

2.2 Data on DTV take-up rates is discussed, and the reasons for poor take-up examined. The chapter concludes with a comparison of DTV rollout processes and take-up rates in other countries.

What is digital television?

2.3 DTV is a new television technology that is replacing existing analogue free-to-air television in Australia.

2.4 DTV delivers television signals in a substantially more efficient way than the current analogue system. With analogue broadcasting, the signal is in the form of a continuous wave, whereas digital broadcasting signals are in the form of discrete bits of information.

2.5 Analogue television channels can transmit one continuous stream of programming and some limited data/text embedded in the main carrier signal. DTV is a broadcasting transmission system which uses digital modulation techniques to transmit television programs. Through compression technology, DTV broadcasting transmitters have the capacity to transmit an HDTV picture, or to transmit multiple programs at the same time using the same amount of bandwidth as used for analogue television. DTV also allows any residual transmission capacity to be used

to transmit data or information, either linked to programs or independently.[1]

2.6 The digital television industry in Australia is using the DVB-T (Digital Video Broadcasting – Terrestrial) standard, first developed in Europe, rather than the American-developed ATSC (Advanced Television Systems Committee) standard. Digital Broadcasting Australia (DBA) claims that DVB-T is proving to be a very high quality system and is being used in many countries around the world. In Australia it will replace the analogue PAL (phase alternation by line) system.[2]

2.7 Australia has three commercial metropolitan television broadcasters and two national television broadcasters. The commercial metropolitan broadcasters are Network Ten, the Nine Network and the Seven Network. There are also a number of regional broadcasters. The national broadcasters are the Australian Broadcasting Corporation (ABC) and the Special Broadcasting Service Corporation (SBS). Commercial and national broadcasters currently transmit programs to the public in analogue mode, using a channel bandwidth of seven Megahertz (MHz).

2.8 Commercial and national broadcasters now also transmit programs to the public in digital mode, using an additional channel bandwidth of seven MHz.

2.9 The transmission of two channels is known as simulacasting and is designed to provide both types of signal during the digital television transition period.

2.10 Each network is required to transmit a certain amount of digital content in HD. The national broadcasters have extra content channels currently being transmitted in their seven MHz allocation.

Benefits of digital television

2.11 DTV offers a number of benefits to viewers, broadcasters and potentially to the Australian Government. The key potential benefits are outlined in this section.

1 www.acma.gov.au/ACMAINTER.65674:STANDARD:239602149:pc=PC_91833, accessed 25 October 2005.

2 www.dba.org.au/index.asp?sectionID=7#What_is_DTV, accessed 28 October 2005.

Pictures

2.12 DTV provides clearer, sharper pictures than analogue, with no 'snowy' or 'ghosted' pictures. DBA stated that DTV will provide improved picture resolution, similar to DVD (digital versatile disc) quality.[3]

2.13 The ABC claims that, for its viewers, DTV means the end of reception interference. Many of the ABC's existing analogue services are broadcast on Channels 0, 1 and 2, particularly in the capital cities. Transmissions on these low band frequencies are susceptible to local electrical interference. However, the ABC's DTV broadcasts will all transmit on higher channels, making reception interference less likely to occur.[4]

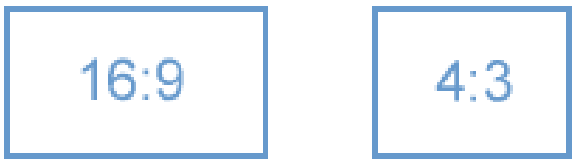
Sound

2.14 DTV provides improved sound quality, with programs broadcast in MPEG-2[5], providing CD-quality stereo sound as standard. Some special programs are also broadcast in Dolby Digital 5.1 – a surround sound format available for both SD and HD viewers who have home theatre systems able to decode the special digital audio signal.[6]

Widescreen

2.15 DTV is also broadcast in 'widescreen', a picture similar in shape to most DVDs. Widescreen means that the picture is a third wider than the old analogue format, with an aspect ratio (or width to height ratio) of 16:9. Traditional television broadcasts have an almost square shape, with an aspect ratio of 4:3. Figure 1.1 shows the difference between the two screen sizes.

Figure 1.1 Aspect ratios of widescreen television and traditional analogue television.



3 www.dba.org.au/index.asp?sectionID=15, accessed 28 October 2005.

4 www.abc.net.au/reception/digital/digi_benefits.htm, accessed 26 October 2005.

5 MPEG-2 (1994) is the designation for a group of coding standards for digital audio and video, agreed upon by MPEG (Moving Pictures Experts Group), and published as the ISO/IEC 13818 international standard. MPEG-2 is typically used to encode audio and video for broadcast signals, including over-the-air DTV, direct broadcast satellite and Cable television. MPEG-2, with some modifications, is also the coding format used by standard commercial DVD movies.

6 www.abc.net.au/reception/digital/digi_benefits.htm, accessed 25 October 2005; Opac Pty Ltd, *submission no. 73*, p. 1; Eleanor Hillard, *submission no. 48*, p. 29.

Spectrum use

2.16 The Australian Consumers' Association (ACA) explained that digital transmission requires much less spectrum than analogue transmission, and is therefore a more efficient use of available spectrum. The digital equivalent to current television signals can be carried in about one quarter of the spectrum capacity currently dedicated to it.[7]

2.17 DTV has the ability to deliver additional features such as HDTV, or multiple program streams (multichannelling) and other enhancements such as interactive television – all in the same spectrum space currently used by one analogue channel.[8]

2.18 Given the pressures being experienced on spectrum allocation, particularly in the United States (US), a more efficient use of spectrum is a substantial advantage of DTV transmission.

Multichannelling

2.19 The more efficient use of spectrum can allow a small number of digital channels to be broadcast in the same spectrum allocation in which one analogue channel is broadcast. This is known as multichannelling.

2.20 The debate concerning multichannelling is considerable and is further discussed in Chapter 4.

Datacasting

2.21 Datacasting enables viewers to access transmitted text and images on topics such as weather, news and sport. Datacasting involves the insertion of prepared content into a broadcaster's transmission stream. The information is then extracted from the DTV broadcasting stream by the set-top box and is displayed on the television screen. Various styles of interaction between the viewer/user and the service provider may be included.[9] It has been suggested that e-commerce and even government services could be delivered via datacasting.

2.22 A more detailed discussion on datacasting can be found in Chapter 4.

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7 ACA, *submission no. 47*, p. 2.

8 www.abc.net.au/reception/digital/digi_benefits.htm, accessed 26 October 2005.

9 www.acma.gov.au/ACMAINTER.65690:STANDARD:1150845662:pc=PC_91870 #datacast, accessed 26 October 2005.

Interactivity

2.23 Interactivity is a major feature of DTV, differentiating it from existing analogue services and potentially providing consumers with an enhanced DTV experience.

2.24 Interactivity allows viewers access to additional program-related content or in some instances the ability to communicate back to the broadcaster (for example, to provide a viewer opinion or to purchase merchandise).[10]

2.25 The ABC claimed that interactivity is already intrinsic to the consumer appeal of some subscription digital television channels.[11]

2.26 The Interactive Television Research Institute (ITRI) explained that while the digitisation of television enables better sound and picture, it also enables a wide range of interactive services. This includes enhancements to television programming as well as stand-alone applications. ITRI's research has consistently demonstrated that such interactivity can significantly enhance the viewing experience.[12]

Standard Definition and High Definition digital television

Standard Definition

2.27 The digital television signal, carried in about one quarter of the spectrum capacity of an analogue signal and broadcasting at the same (or similar) resolution as analogue systems, is referred to as standard definition digital television or SDTV.[13]

2.28 SDTV in 4:3 aspect ratio has the same appearance as analogue television, minus the ghosting, snowy images and static noises.[14] The SDTV picture resolution is 576 lines x 720 pixels @ 50Hz interlaced (576i).[15]

2.29 SDTV opens up the possibility of broadcasting four channels where one analogue channel currently exists. Therefore, with no increase in spectrum allocation, broadcasters could transmit at least four times as much in SD digital than what they currently broadcast in analogue.[16]

10 Samsung Electronics Australia, *submission no. 87*, p. 3.

11 ABC, *submission no. 45*, p. 8.

12 ITRI, *submission no. 46*, p. 5.

13 ACA, *submission no. 47*, p. 2; en.wikipedia.org/wiki/Standard-definition_television, accessed 26 October 2005.

14 en.wikipedia.org/wiki/Standard-definition_television, accessed 26 October 2005.

15 www.acma.gov.au/ACMAINTER.65690:STANDARD:1150845662:pc=PC_91870#sdtv, accessed 25 October 2005.

16 ACA, *submission no. 47*, p. 2.

2.30 At present, broadcasters are required to provide a digital SDTV signal at all times, even when HD programs are being broadcast. This is to ensure that viewers with SD receivers will always be able to receive a DTV service, even when the higher quality HD signal is being transmitted.[17]

2.31 An SD or HD set-top box or an SD or HD integrated television set is required to receive SDTV signals.

High Definition

2.32 HDTV refers to pictures that contain significantly more detail than other pictures as they contain a larger number of pixels.[18] The minimum HDTV picture resolution is 576 lines x 720 pixels at 50Hz progressive scan (576p). Different resolutions of HD are discussed in Chapter 4.

2.33 HDTV pictures have an image resolution which is superior to SDTV pictures and existing analogue pictures, with up to six times the improvement in detail. HDTV pictures are also ghost free and in widescreen format. When viewed on an HDTV screen the viewer can enjoy cinema-quality viewing with Dolby surround sound. The benefits of HDTV pictures are particularly noticeable on larger screen sets and when using projection equipment.[19]

2.34 Broadcasters are required to transmit HDTV for a minimum of 1 040 hours per calendar year (an average of around 20 hours per week). HDTV is transmitted as well as the SDTV signal.[20]

2.35 A HD set-top box or an HD integrated television set is required to receive HDTV signals.

Why was DTV introduced?

2.36 In 1992 the Australian Broadcasting Authority (ABA) convened a specialist group of representatives from the broadcasting and manufacturing sectors to work on the prospect that digital terrestrial television broadcasting (DTTB) should be introduced into Australia. The ABA's Specialist Group produced its Final Report in 1997. [21]

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17 www.acma.gov.au/ACMAINTER.65690:STANDARD:1150845662:pc=PC_91870#sdtv, accessed 25 October 2005.

18 Nine Network, *submission no. 59*, p. 2.

19 www.acma.gov.au/ACMAINTER.65690:STANDARD:1150845662:pc=PC_91870#hdtv, accessed 26 October 2005.

20 DCITA, *submission no. 66*, p. 3.

21 Webb, P.J. (2003) *Digital Terrestrial Television in Australia*. Digital Broadcasting Australia Ltd, Broadcast Asia 2003 paper.

2.37 The report, *Digital Terrestrial Television Broadcasting in Australia*, represented the result of several years' consultation, research and international cooperation. The report contained the conclusions of the Specialist Group which led to the recommendations for the introduction of DTTB in Australia.[22]

2.38 The ABA recommended the Australian Government support the early introduction of DTTB into Australia, as an HDTV system, but with sufficient flexibility to enable broadcasters to experiment with program offerings and find programming approaches acceptable to the Australian viewer.[23]

2.39 In a July 1997 press release, Mr Peter Webb, the ABA Chairman said:

> DTTB will provide the foundation for television of the 21st century. The present analogue system will not meet the expectations and needs of viewers in the next century while cable and satellite television systems that use digital transmission are restricted by the lack of digital receivers in the home. DTTB opens up all sorts of new and exciting possibilities for viewers.[24]

2.40 The two main benefits of the introduction of DTV were seen as:

- Overcoming transmission problems such as ghosting, 'snowy' pictures and interference; and
- To provide enhanced television services such as wide screen and high definition formats.[25]

2.41 Many other countries are now going to digital capture, production and broadcasting. The Seven Network stated that most of the world is going digital, with SDTV as the standard technology for the delivery of DTV.[26]

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22 *ABA to release report on digital terrestrial television broadcasting*, ABA media release, 28 January 1997, www.aba.gov.au/newspubs/news_releases/archive/1997/5nr97.shtml, accessed 28 October 2005.

23 Webb, P.J. (2003) *Digital Terrestrial Television in Australia*. Digital Broadcasting Australia Ltd, Broadcast Asia 2003 paper.

24 *ABA backs introduction of digital television*, ABA media release, 22 July 1997, www.aba.gov.au/newspubs/news_releases/archive/1997/70nr97.shtml, accessed 28 October 2005.

25 *Wide screen high definition television on the way, ABA media release*, 30 January 1997, www.aba.gov.au/newspubs/news_releases/archive/1997/7nr97.shtml, accessed 28 October 2005; *Why Digital?* www.digitaltv.com.au/why.html, accessed 28 October 2005.

26 Seven Network, *transcript of evidence 1 September 2005*, p. 12.

2.42 Sony Australia Ltd (Sony) discussed the move to high definition production:

> The reality is that the world is moving to high [definition] whether we like it or not and the amount of production that is being done in high [definition] now in terms of high quality production and drama is very significant—as I said, 70 per cent of the US prime time is all in high [definition]; a lot of Europe is already moving to high [definition] transmission.[27]

2.43 The Committee is cognisant of the fact that in order to have a competitive film and television production industry, Australia must keep up with digital capture, production and transmission trends exhibited by the rest of the world.

Policy and legislation background

Legislative framework

2.44 The Australian Government legislated for the introduction of DTTB in Australia by enacting the Digital Act as an amendment to the BSA[28] The main purpose of the Digital Act is to provide a regulatory regime for DTV broadcasting in Australia.[29]

2.45 The framework set out by the Digital Act was further built upon by the *Broadcasting Services Amendment (Digital Television and Datacasting) Act 2000* and some subsequent amendments. Schedule 4 of the BSA relates to digital television broadcasting. Schedule 6 relates to datacasting services.

2.46 DCITA explained that the DTV regulatory framework places:

> A requirement on the existing commercial and national free-to-air broadcasters to commence digital terrestrial television broadcasts on 1 January 2001 in capital cities, and in regional areas between 1 January 2001 and 1 January 2004.[30]

2.47 The framework does not impose any nationally applying analogue switch-off or digital rollout dates. Rather, it establishes a transition, or simulcast,

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27 Sony, *transcript of evidence 7 September 2005*, p. 6.

28 DCITA, *submission no. 66*, p. 2.

29 www.acma.gov.au/ACMAINTER.65674:STANDARD:239602149:pc=PC_91833, accessed 25 October 2005.

30 DCITA, *submission no. 66*, p. 2.

period which is related to the date transmission commenced in particular regions. DCITA explained that there is:

> A simulcast period of at least 8 years from the required commencement date in each area. The simulcast will last until at least the end of 2008 in metropolitan areas and until a series of later dates in regional areas depending on the timing of commencement. The simulcast period was intended to provide consumers with a range of equipment choices and time to convert to digital. (The length of the simulcast period is the subject of a statutory review scheduled to be conducted by 1 January 2006).[31]

2.48 During the simulcast period, broadcasters are required to:

> Provide a simulcast of analogue services and digital standard definition television (SDTV), and a minimum amount of high definition TV (HDTV) transmissions.[32]

2.49 In order to facilitate this simulcast period, the Australian Government has provided:

> The loan of sufficient spectrum to each existing commercial and national broadcaster to enable them to provide all digital services required under the digital framework and to facilitate equivalent coverage between analogue and digital services:
>
> - 7 MHz of spectrum enables a broadcaster operating in digital mode to transmit data at a rate of up to around 23 megabits per second (Mbit/s). An SDTV service typically requires 4 to 8 mbps. An HDTV version of that service requires between about 8 and 19 mbps depending on content, quality requirements and scanning parameters. Associated sound and service information data to operate the service requires around 1 to 2 mbps. Broadcasters have considerable technical flexibility to manage data within their channel; and
> - analogue spectrum is to be resumed by the ABA from each broadcaster at the end of the simulcast period, having regard to its most efficient use.[33]

2.50 DCITA explained the arrangements for lending spectrum to broadcasters. Each broadcaster was loaned sufficient spectrum to enable them to provide all digital services required under the digital framework and to

31 DCITA, *submission no. 66*, p. 2.

32 DCITA, *submission no. 66*, p. 2.

33 DCITA, *submission no. 66*, p. 3.

facilitate equivalent coverage between analogue and digital services. Essentially, a seven MHz channel was allocated to each broadcaster.[34]

2.51 DCITA explained the HDTV transmission minimum requirements for broadcasters:

> A requirement that broadcasters fill an HDTV quota of 1040 hours per calendar year (an average of around 20 hours per week), commencing July 2003 in state capitals. Commercial broadcasters are required to fill their quotas by transmitting 'true' HDTV programming whereas national broadcasters can fill their similar HDTV quota with 'upconverted' material.[35]

2.52 The framework outlined a ban on the provision of multichannel broadcasting services:

> A prohibition on multichannelling by commercial television broadcasters and limits on multichannelling by national broadcasters, designed to minimise the initial impact of new digital free to air (FTA) services on the pay TV sector.[36]

2.53 The framework also outlined the delaying of further broadcasting licences:

> A moratorium on the issue of new commercial television broadcasting licences until after 31 December 2006 (except in single and two-licence areas):
>
> - the moratorium recognised that commercial broadcasters would need to spend approximately $1 billion on digital conversion while being required to maintain high quality television services, including local content, during the conversion period.[37]

2.54 DCITA explained that the framework discussed the regulations concerning datacasting:

> Provisions for the potential introduction of 'datacasting services' - new, digital-only services that are different to traditional broadcasting services. Content restrictions apply to these services. The regime provides for the allocation of datacasting licences to

34 DCITA, *submission no. 66*, p. 2.

35 A distinction exists between material produced using HDTV cameras, or derived from 35 mm film (referred to as HDTV-originated, or 'native', material), and analogue or standard definition programming, which is produced in analogue or SDTV format and 'upconverted' or enhanced using various techniques before it is transmitted as an HDTV product. DCITA, *submission no. 66*, p. 3.

36 DCITA, *submission no. 66*, p. 3.

37 DCITA, *submission no. 66*, p. 3.

both new players and existing broadcasters, and spectrum has been reserved for potential new datacasters (there are, as yet, no standalone datacasting services, although a trial is currently underway in Sydney):

- the main restrictions on datacasting content relate to the provision of certain genres of programs commonly provided on FTA television;
- datacasting licensees are allowed to provide information-only programs;
- FTA broadcasters may use spare digital capacity on their allocated digital channels to provide datacasting services, subject to obtaining a datacasting licence, but cannot obtain a datacasting licence in other spectrum set aside for datacasting services; and
- from 1 January 2007, the range of services which could be provided by datacasters may broaden to include certain types of broadcasting services e.g. pay TV services, narrowcast services.[38]

2.55 DCITA added that the conversion framework includes:

- the provision of financial assistance (around $250 million over 13 years) under the Regional Equalisation Program. This assistance takes the form of rebates on licence fees and grants to assist regional and remote commercial broadcasters to undertake the conversion process. It is intended to meet half the broadcasters' costs for non-content aspects of their digitisation during the simulcast period; and
- funding for the full costs of the ABC's and SBS's digital transmission and distribution services.[39]

2.56 DCITA stated that the framework adopted by the Australian Government recognises the high conversion costs of DTV to industry and consumers.[40]

2.57 DCITA also explained that the framework is intended to provide for a managed transition to digital broadcasting by ensuring that consumers can continue to access high quality broadcasting services, and by providing ongoing regulatory certainty for broadcasters who have to make significant capital investments in digital technology.[41]

38 DCITA, *submission no. 66*, pp. 3-4.
39 DCITA, *submission no. 66*, p. 4.
40 DCITA, *submission no. 66*, p. 4.
41 DCITA, *submission no. 66*, p. 4.

2.58 DCITA further explained that the simulcast period was intended to provide consumers with time to consider their options and choose how and when to convert to DTV.[42]

2.59 Various aspects of this regulatory framework are under review by DCITA. The review process is discussed next.

Australian Government Reviews

2.60 The Australian Government is in the process of conducting a number of reviews to help evaluate progress in implementing DTV and the effectiveness of the current regulatory framework.

2.61 Schedule 4 of the BSA required a number of digital policy reviews to be conducted by 1 January 2005. Several of the specific statutory reviews were grouped into four broad thematic reviews, each of which was launched in 2004 with the release of an issues paper and call for submissions in response.[43] The DCITA submission outlined the reviews to be conducted:

- The first thematic review examined whether restrictions on additional programming provided by free to air broadcasters, including multichannelling and other types of services such as pay television channels, should be modified. Submissions to this review were sought by 30 July 2004. The department received 38 submissions and one supplementary submission.
- The second review covered matters relating to the end of the moratorium on the issuing of new commercial television licences, which concludes on 31 December 2006. In 2004 the Government announced its intention to amend the current legislative arrangements so that the power to allocate new commercial television broadcasting licences is vested in the Government rather than the ABA. This review provides an opportunity to consider how this change should be implemented.
- This second review also examined the arrangements for the conversion of any datacasting licences to other types of broadcasting licence as well as the licence conditions that should apply to any new commercial television licences. Submissions to this review were sought by 24 September 2004. The department received 17 submissions.
- A third review examined the efficient allocation of spectrum for television and datacasting services, while the fourth review examined the operation of legislation related to markets with

42 DCITA, *submission no. 66*, p. 4.

43 DCITA, *submission no. 66*, p. 15.

only one or two commercial television broadcasters. Issues papers for both these reviews were released on 1 December 2004 and submissions were received.[44]

2.62 There is a statutory obligation to report to Parliament on the outcome of these reviews. DCITA indicated that the Australian Government will consider these four thematic reviews and will respond as appropriate.[45]

2.63 As of February 2006, the outcomes of the reviews have not been reported to Parliament.

2.64 The DCITA submission outlined further reviews to be conducted:

- A review of the viability of establishing an indigenous television broadcasting service and the regulatory arrangements that should apply to the digital transmission of such a service was also launched on 10 May 2004. Submissions closed on 30 September 2004. Forty-nine submissions were received. In addition to releasing an issues paper for public comment, DCITA conducted public consultation around Australia for this review.
- A review of the HDTV quotas is required to be conducted by 1 July 2005. This review will examine the regulatory arrangements that should apply to HDTV transmissions in metropolitan, regional and remote areas of Australia. Submissions closed on 24 June 2005.
- A review of the duration of the simulcast period is required to be conducted by 1 January 2006. This review will examine the process for the transition to full digitisation and the cessation of analogue broadcasting.[46]

2.65 The Committee expects that the recommendations from this report will be incorporated into the reviews being conducted by DCITA.

Digital television rollout

2.66 This section of the report looks at the progress of the rollout of DTV infrastructure across Australia and the coverage of DTV transmissions available to date.

44 DCITA, *submission no. 66*, pp. 15-16.

45 DCITA, *submission no. 66*, p. 16.

46 DCITA, *submission no. 66*, p. 16.

Rollout planning

2.67 The Australian Communications and Media Authority (ACMA) was formed on 1 July 2005, from the merger of the Australian Broadcasting Authority (ABA) and Australian Communications Authority.

2.68 The ACMA plans the channels that radio and television services use, issues and renews licences, regulates the content of radio and television services and administers the ownership and control rules for broadcasting services.[47]

2.69 The ACMA is responsible for managing the conversion of television transmissions from analogue to digital.[48]

2.70 Schedule 4 of the BSA requires the ACMA to develop legislative schemes for the conversion of commercial and national television broadcasting services from analogue to digital mode over a period of time. The ACMA is empowered under the conversion schemes to develop Digital Channel Plans (DCPs) which will determine the channels to be allotted in each area and assigned to each broadcaster as well as the technical limitations and characteristics of those channels.[49]

2.71 The ACMA's objective in preparing the DCPs is to enable a broadcaster to plan its digital transmission coverage to match its analogue coverage.[50] A full list of DCPs can be found on the ACMA's archive website.[51]

Rollout progress

2.72 DCITA claims that significant progress has been made in the rollout of digital free-to-air television transmissions in Australia.[52]

2.73 Commercial and national digital broadcasting services commenced in Sydney, Melbourne, Brisbane, Adelaide and Perth on 1 January 2001.[53]

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47 www.acma.gov.au/ACMAINTER.65674:LANDING:1807859880:pc=RADIOTV, tlp=RADIOTV, accessed 25 October 2005.

48 DCITA, *submission no. 66*, p. 4.

49 www.acma.gov.au/ACMAINTER.65690:STANDARD:2129172694:pc=PC_91842, accessed 25 October 2005.

50 www.acma.gov.au/ACMAINTER.65674:STANDARD:506195048:pc=PC_91851, accessed 2 November 2005.

51 www.aba.gov.au/newspubs/radio_TV/broadcast_planning/DCPs.shtml, accessed 2 November 2005.

52 DCITA, *submission no. 66*, p. 5.

53 DCITA, *submission no. 66*, p. 5.

2.74 In other areas of Australia, television broadcasters were required to start digital transmissions at one site (at least) in each licence area some time between 1 January 2001 and 1 January 2004.[54]

2.75 Digital services have also commenced in all regional licence areas. According to ACMA, an estimated 84 per cent of the Australian population now has access to digital services from all their local free-to-air broadcasters, and around 96 per cent of the population (or 95 per cent of households) has access to at least one DTV service.[55]

2.76 DCITA, in quoting the ABA Annual Report 2003-2004, stated that by June 2004, 315 digital transmitters had commenced operation at 106 transmission sites covering a number of metropolitan areas and major regional centres across Australia.[56]

2.77 The ACMA stated that, at 30 June 2005, 526 digital transmitters had commenced covering all metropolitan markets, a number of major regional centres and some remote areas.[57]

2.78 DCITA explained the rollout progress of the national broadcasters:

> … by the end of March 2005, implementation plans have been approved for 154 ABC digital television services and 117 SBS digital television services. It is estimated that ABC and SBS have around 440 and 230 analogue sites respectively.[58]

2.79 Broadcast Australia stated that ABC digital television services now reach over 96 per cent of Australia's population.[59]

2.80 Broadcasters are continuing to establish digital transmitters in some areas, particularly smaller regional areas. DCITA explained that the BSA requires broadcasters to achieve equivalent digital coverage as is currently achieved by analogue services as soon as practicable and by the end of the eight year simulcast period.[60]

2.81 There is no deadline for the commencement of digital services in remote areas, however, DCITA explained that arrangements have been approved for the introduction of digital commercial television services in remote

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54 www.acma.gov.au/ACMAINTER.65674:STANDARD::pc=PC_90055, accessed 25 October 2005.

55 DCITA, *submission no. 66*, p. 5.

56 DCITA, *submission no. 66*, p. 5.

57 ACMA (2005) *ABA Annual Report 2004-2005*, ACMA, p. 24.

58 DCITA, *submission no. 66*, p. 5.

59 Broadcast Australia Pty Ltd, *submission no. 41*, p. 8.

60 DCITA, *submission no. 66*, p. 5.

Western Australia (WA), expected to commence in 2006. DCITA added that negotiations are continuing with commercial licensees Southern Cross Broadcasting (Australia) Ltd (SCB) and Imparja, in the remote Central and Eastern Australia licence area, regarding the development of a digital conversion model.[61]

2.82 The ACMA's website provides a timeline of events for the rollout of DTV.[62] The information from the timeline is summarised in Table 2.1.

Table 2.1 Digital television rollout: timeline of events.

Date	Event
July 1998	Introduction of the Television Broadcasting Services (Digital Conversion) Act 1998
March 1999	ABA releases the Commercial and Draft National Television Conversion Scheme
April 1999	ABA releases Draft Metropolitan Digital Channel Plans (Includes five mainland capital cities, Hobart, Newcastle, Canberra, Wollongong, Batchelor, Toowoomba)
July 1999	ABA releases documents to outline the technical and general assumptions used in allocating digital channels to broadcasters
July 1999	ABA releases Digital Channel Plans for several metropolitan markets (Brisbane and Toowoomba; Darwin and Batchelor; Sydney, Newcastle and Wollongong)
October 1999	Release of further Digital Channel Plans for metropolitan markets (Adelaide, Canberra, Hobart, and Melbourne)
22 Dec 1999	Announcement by the Minister: "Digital - New Choices, Better Services for Australians"
Mid 2000 to Jan 2001	Digital television transmitters set-up and testing of digital signal
1 Jan 2001	Commencement of Digital Transmissions in Metropolitan Areas (Five mainland capital cities, Hobart, Newcastle, Canberra, Wollongong, Batchelor, Toowoomba)
1 Jan 2001 to 1 Jan 2004	Commencement of Digital Transmissions in Regional Areas
1 Jan 2003	High-definition programming quotas come into effect
2005	Reviews to be finalised by Minister
31 Dec 2006	New commercial television broadcasting licences may be issued
2008	Prescribed end of analogue simulcast period in metropolitan areas

Source *ACMA website: http://www.acma.gov.au/ACMAINTER.65674:STANDARD:239602149:pc=PC_91834*

2.83 The ACMA stated that its intention is to make sure the rollout occurs quickly. The ACMA claimed that it has considered the digital implementation plans that each broadcaster develops and has planned all

61 DCITA, *submission no. 66*, p. 5.

62 www.acma.gov.au/ACMAINTER.65674:STANDARD:239602149:pc=PC_91834, accessed 25 October 2005.

the main transmission sites in the country. The ACMA added that they will have completed all repeater sites by May 2006, with the exception of the remote satellite markets.[63]

2.84 The ACMA admitted that, although the bulk of the population will be covered very quickly, it is possible that some of the rollout of transmission repeaters, rather than main stations, may not be finished until 2012 in some regional areas.[64]

2.85 The ACMA explained the rollout task:

> The conversion scheme actually says that, during the eight years, [broadcasters] have to achieve the same coverage as soon as possible. That is relatively easy in markets that have one or two transmitters, such as Darwin or Adelaide, but it is an enormous challenge in some of the aggregated markets or in Tasmania, where you might have dozens or even 60 or 80 transmitters. It is an enormous logistical piece of work.[65]

Broadcasters

2.86 Free TV Australia stated that free broadcasters have invested significantly in upgrading their television production and transmission facilities to digital technology, and that the free-to-air digital roll-out is expected to cost up to $1 billion by the time it is complete.[66]

2.87 Free TV Australia stated that '[t]echnically, the roll-out has been quicker and more successful … than anywhere else in the world to date'.[67] They added that '[w]e have rolled out digital services across Australia with minimum interference to the existing analogue services'.[68]

2.88 Free TV Australia explained that regional broadcasters are expected to complete their digital rollout in both SD and HD formats by 2012. However, by 2008 it is expected that the vast bulk of regional television audiences will have all their local services being transmitted in digital.[69]

2.89 SBS claimed that the Australian digital transmission rollout has been highly successful and of a scale, speed and complexity unparalleled in

63 ACMA, *transcript of evidence 1 June 2005*, p. 11.
64 ACMA, *transcript of evidence 1 June 2005*, p. 16.
65 ACMA, *transcript of evidence 1 June 2005*, p. 16.
66 Free TV Australia, *submission no. 31*, p. 3.
67 Free TV Australia, *transcript of evidence 25 May 2005*, p. 3.
68 Free TV Australia, *transcript of evidence 25 May 2005*, p. 2.
69 Free TV Australia, *submission no. 31*, p. 7.

international markets. SBS claimed that the rollout of SBS digital transmission services is due to be complete by 2007.[70]

2.90 The ABC stated that it is now in the process of rolling out in-fill transmitters to meet its obligations to achieve the same level of coverage as is provided by its existing analogue services.[71]

2.91 Broadcast Australia is contracted to roll-out ABC digital services nationally, and claimed that ABC digital television services, broadcast from 131 transmitters[72], now reach over 96 per cent of Australia's population.[73]

2.92 The ABC added that it is required to match its analogue coverage in metropolitan areas by 2008 and in regional areas by 2012. The ABC claimed that it has already met its quota for metropolitan areas ahead of schedule.[74]

2.93 The ABC explained that its transmitters will continue to be rolled out in regional areas over the next seven years, at a rate of approximately 40 new transmitters each year, in order to meet the regional deadline of 2012. The ABC claimed its digital signal will reach 98 per cent of the country, which is broadly equivalent to current analogue coverage.[75]

Regional rollout

2.94 Regional broadcasters were required to commence DTV broadcasts between 1 January 2001 and 1 January 2004.[76] The end date for regional simulcast is projected to be 31 March 2011.[77]

2.95 Regional broadcasters face a huge task in rolling out a full service to all areas, given the large number of transmitters involved.[78]

2.96 However, regional broadcasters reported that rollout is expected to be complete around the same time as the scheduled metropolitan analogue switch-off.

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70 SBS, *submission no. 62*, p. 4.
71 ABC, *submission no. 45*, p. 12.
72 ABC, *submission no. 45*, p. 12.
73 Broadcast Australia, *submission no. 41*, p. 8.
74 ABC, *submission no. 45*, p. 12.
75 ABC, *submission no. 45*, p. 12.
76 DCITA, *submission no. 66*, p. 2.
77 WIN, *transcript of evidence 1 September 2005*, p. 26.
78 www.aba.gov.au/broadcastserv/digital/tv/channels.shtml, accessed 1 November 2005.

2.97 WIN Corporation (WIN) stated that the majority of major regional areas already have digital reception.[79] WIN added that the rollout of its high powered transmitters will be complete in 2006 with coverage of approximately 85 per cent of WIN viewers. WIN added that the end of 2006 will see it moving into the next stage of the roll-out, which is the low powered transmitters, and then assessing the necessity for in-fill translators to achieve the legislated same coverage.[80]

2.98 SCB stated that it has 215 sites at which digital transmitters must be installed. SCB explained further:

> In an impressive and highly committed engineering effort, we have delivered digital services to 26 of the 30 separate television markets in which we operate, reaching approximately 80 per cent of the total viewing population in those markets. We are now in the process of commissioning a number of low-power sites to cover the remainder of the population in each market.[81]

2.99 SCB stated that it will have completely rolled out digital transmission facilities in all markets by 2008.[82]

Potential problems in achieving rollout

2.100 Some issues have been identified that may have an impact on achieving complete rollout and analogue switch-off.

2.101 The ABC is uncertain whether the current approach to spectrum planning for DTV will be able to truly achieve the objective of equivalent coverage. The ABC provided an example:

> The Corporation has already identified digital broadcast areas where it has not been possible to achieve equivalent coverage to analogue services. For example, the ABC's analogue service to the Bega/Cooma region is transmitted on VHF Channel 8 from Brown Mountain, while its digital service will be transmitted using UHF spectrum. As a result, the ABC's coverage will be reduced by between 769 and 1,634 households, depending on the siting of the digital transmitter, a decline in effective coverage of between 7% and 14%.[83]

79 WIN, *submission no. 56*, p. 1.

80 WIN, *transcript of evidence 1 September 2005*, p. 27.

81 SCB, *transcript of evidence 1 September 2005*, p. 16.

82 SCB, *transcript of evidence 1 September 2005*, p. 22.

83 ABC, *submission no. 45*, p. 13.

2.102 The ABC also stated that there are a number of areas where DTV services are currently operating at power levels below those ultimately planned to prevent interference with existing analogue transmissions:

> It will not be known whether these services will be able to achieve equivalent coverage when operating at full power until the cessation of the analogue services; the installation of further transmitters may be necessary to ensure that the objective of equivalent coverage is met.[84]

Interference management

2.103 DCITA stated that an interference management scheme was established and funded by the broadcasting industry to minimise any effects on consumers of interference to analogue transmissions caused by digital transmissions.[85]

2.104 DCITA explained that:

> The scheme was designed to protect viewers' analogue services and to ensure that if interference occurs, the problem is resolved quickly. As part of the scheme, an interference hotline was established, which gives viewers advice on, and assistance with, interference issues - particularly with interference to video cassette recorders, with poor reception of analogue services, and information on rollouts, where necessary.[86]

2.105 Free TV Australia explained that:

> … all free-to-view digital television broadcasters have co-operatively formed an Analogue Interference Assistance Scheme to inform analogue television viewers of possible interference to their reception (caused by near-by digital free-to-view television transmissions) and to manage and provide assistance in resolving interference problems.[87]

2.106 Free TV Australia explained that the interference management scheme is designed to provide mechanisms to solve any problems so that the digital rollout takes place with minimal disruption to analogue viewing.[88]

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84 ABC, *submission no. 45*, p. 13.

85 DCITA, *submission no. 66*, p. 9.

86 DCITA, *submission no. 66*, p. 9.

87 Free TV Australia, *submission no. 31*, p. 10.

88 Free TV Australia, *submission no. 31*, p. 10.

2.107 Free TV Australia claimed that the broadcasters have now spent close to $3 million on the scheme since its inception in December 2000. The scheme has received more than 300 000 calls, and more than 250 000 leaflets and brochures have been downloaded from the internet or sent out by the broadcasters to interested viewers.[89]

2.108 Free TV Australia believes that a positive sign is that only 2 000 homes visits have been required to be authorised under the scheme.[90]

2.109 Free TV Australia also stated that:

> The level of interference that has been caused to analogue reception during the roll-out of free-to-view digital television so far has been minimal compared to any estimate made prior to it commencing in December 2000.[91]

2.110 The Committee is satisfied that the interference management scheme is operating effectively, and credits the cooperation between broadcasters, DCITA and the ACMA.

Digital television coverage

2.111 Details of DTV coverage available to consumers is available from DBA.

2.112 DBA was formed to help make the transition from analogue to DTV as seamless as possible for the consumer. The DBA mission is to gain the cooperation and coordination of the free-to-air broadcasters, consumer electronics suppliers, retailers and installers in the promotion of the introduction of digital free-to-air television into Australia, to ensure the transition from analogue to digital occurs efficiently and effectively, and to the benefit of the television and associated industries, viewers and consumers.[92]

2.113 DBA provides its members and consumers with information about DTV commencement dates and coverage, the functionality and availability of equipment, retailer locations and the range of DTV programs and enhancements to be broadcast. DBA also encourages training programs for sales staff, service technicians and antenna installers.[93]

89 Free TV Australia, *submission no. 31*, p. 10.

90 Free TV Australia, *submission no. 31*, p. 10.

91 Free TV Australia, *submission no. 31*, p. 10.

92 www.dba.org.au/index.asp?sectionID=68, accessed 25 October 2005.

93 www.dba.org.au/index.asp?sectionID=29, accessed 25 October 2005.

2.114 DBA produces a bi-monthly newsletter, which includes an updated listing of the markets which, at that time, receive digital television. Table 2.2 below lists the television markets with DTV coverage.

Table 2.2 List of markets with digital television coverage – February/March 2005

State/Territory	All local broadcasters transmitting digital tv	Some local broadcasters transmitting digital tv
NSW/ACT	Sydney, Canberra, Newcastle, Wollongong, Central Coast, Griffith, Bowral/Mittagong, Orange & Central Tablelands, Wagga Wagga, Broken Hill, Lismore/Richmond/Tweed	Bathurst, Dubbo/Central Western Slopes, Grafton/Kempsey, Batemans Bay, Coffs Harbour, Port Macquarie/Taree/Forster, Murwillumbah, Upper Namoi, Ulladulla, Narooma, Nowra North, Cooma, Lithgow, South West Slopes, Tamworth, Armidale
Victoria	Melbourne, Hamilton/Western Victoria, Mildura/Sunraysia, La Trobe Valley, Ballarat, Shepparton/Goulburn Valley	Bendigo, Murray Valley
Queensland	Brisbane, Gold Coast, Sunshine Coast (Gympie, Nambour, Noosa), Rockhampton, Townsville, Cairns, Wide Bay, Toowoomba, Darling Downs	Southern Downs, Mackay, Gladstone, Boyne Island, Blackwater, Charters Towers
South Australia	Adelaide, Mt Gambier/Sth East, Renmark/Riverland, Spencer Gulf North	
Western Australia	Perth	Albany, Bunbury, Broome, Carnarvon, Central Agricultural, Geraldton, Kalgoorlie, Southern Agricultural, Port Hedland. Narrogin, Wagin, Esperance, Karratha, Manjimup
Tasmania	Hobart, Launceston, NE Tasmania	
Northern Territory	Darwin	Katherine

Source *Free to View Digital Television Information Bulletin [Aug-Sept 2005], Digital Broadcasting Australia, http://www.dba.org.au/newsletter/IB-FebMar06-full.asp*

2.115 Based on its May 2005 figures, DBA claimed that around 85 per cent of television households have all their local digital free-to-air channels available to them. DBA explained that this translates to 6.4 million of the 7.6 million Australian television homes.[94]

2.116 The DBA supplementary submission provided updated figures:

> In the period since May 2005, one further large coverage area, Richmond/Tweed in Northern NSW, has joined the list of coverage areas where a full range of local free to air services are now available in digital. Accordingly DBA estimates that some

94 DBA, *submission no. 34*, p. 3.

> 87% of the Australian population now has all local free to air television services available in digital form. In other words around 6.6 million of Australia's 7.6 million TV homes now have a full range of local free to view digital TV services available.[95]

2.117 The DBA website provides a reception locator facility. Consumers can choose any region and location, or simply enter their postcode, to see details of what digital services are operational in that area and what services are expected. Information on the availability of DTV is provided by DBA, ACMA and the broadcasters.

2.118 The ACMA website provides a general locator facility, indicating which broadcasters are in a particular area, searchable by postcode.[96] The ACMA website links to the DBA website for DTV reception in particular areas.

2.119 The ACMA website provides a list of channel allocations for each network, in each area served, for every state.[97]

2.120 The ABC has a comprehensive reception advice website that includes an introduction to DTV.[98] The website includes a reception locator facility, providing frequency information for all ABC services in a given area. The facility is searchable by postcode, town or suburb name, state or ABC service type, and coverage maps are provided.[99] The website also advertises the ABC 1300 number 'Reception Adviceline'.

Take-up rates in Australia

Measuring take-up

2.121 The Committee received evidence regarding DTV take-up rates from DBA, ACMA and a market research company called GfK Australia.

DBA data

2.122 DBA explained that there are at least three relevant ways to look at or measure DTV take-up. These are sales of digital receivers to retailers,

95 DBA, *submission no. 92*, p. 1.

96 www.aba.gov.au/broadcastserv/broadcasters/postcode_acma.shtml, accessed 1 November 2005.

97 www.acma.gov.au/ACMAINTER.65690:STANDARD:2129172694:pc=PC_90056, accessed 1 November 2005.

98 www.abc.net.au/reception/digital, accessed 2 November 2005.

99 www.abc.net.au/reception/freq, accessed 2 November 2005.

television home take-up and converted television sets. DBA also noted that each of these view points is subject to some estimate.[100]

Sales of digital receivers to retailers

2.123 DBA stated that sales to retailers are how the main consumer electronic industry statistics are reported. However, DBA points out that the main official reporting agencies do not include sales to retailers by entities that do not subscribe to the sales information service. DBA stated that it supplements the official data by collecting similar sales figures directly from those DBA members who do not subscribe to these services.[101]

2.124 Based on the sources described, DBA reported sales of 777 000 free-to-air digital television receivers as at 31 March 2005 and estimates that as at 1 May 2005 in the order of 820 000 have been sold to retailers. DBA added that digital receiver sales have been around 40 000 per month for the last nine months.[102]

2.125 In its supplementary submission, DBA estimated that, at the end of June 2005, some 920 000 free-to-air DTV receivers (either set-top boxes or integrated DTV sets) had been sold by manufacturers and suppliers to retailers and installers.[103]

2.126 DBA estimated that some 47 500 free-to-air DTV receivers per month were sold to retailers and installers during the June quarter.[104]

2.127 DBA estimated that some 54 500 free-to-air DTV receivers per month were sold to retailers and installers during the September 2005 quarter, a 35 per cent increase on the same period in 2004.[105]

2.128 DBA's September quarter figures report that suppliers have sold 1 085 000 free-to-air DTV receivers to retailers, with just over half that number sold in the past 12 months.[106]

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100 DBA, *submission no. 34*, p. 4.

101 DBA, *submission no. 34*, p. 4.

102 DBA, *submission no. 34*, p. 4.

103 DBA, *submission no. 92*, p. 1.

104 DBA, *submission no. 92*, p. 1.

105 DBA, www.dba.org.au/uploads/documents/DBA_Media_Release_03Nov2005.pdf, accessed 4 November 2005.

106 DBA, www.dba.org.au/uploads/documents/DBA_Media_Release_03Nov2005.pdf, accessed 4 November 2005.

Television home take-up

2.129 DBA stated that sales of digital receivers to retailers do not directly compute into free-to-air DTV home take-up or penetration rates. DBA explained that this is because a certain amount of sales to retailers are held in inventory. This is an estimate of around 50 000 receivers or one month of stock. DBA further explained that an unreported number of television homes will have more than one free-to-air DTV receiver. Therefore the home take-up rate will be less than the sales of digital receivers.[107]

2.130 DBA added that, based on the United Kingdom (UK) experience, at the early stages of take-up, sales to viewers can be taken as a near proxy to home take-up or penetration. However for the purpose of completeness the DBA submission assumed around 50 000 free-to-air DTV homes have more than one free-to-air digital television receiver.[108]

2.131 DCITA stated that The Office of Communications (Ofcom) in the UK calculates DTV penetration adjusted to incorporate the number of households with more than one digital set and estimates that around 25 per cent of sales in the last quarter of 2004 were for second sets. DCITA is not aware of any records on the percentage of sales which are second sets in the Australian market.[109]

2.132 DBA explained that after putting these figures together:

> … the current (1 May 2005) home take-up or penetration, based on the sales figures estimated by DBA is 720,000 (820,000 less 100,000) or around 11.2% of the homes in areas where a full suite of local free-to-view digital television services are available and 9.5% of all Australian television homes.[110]

2.133 As at 31 June 2005, DBA estimated that some 820 000 (after making allowances as calculated in the above example) homes in Australia had free-to-air DTV capability. This means that in the order of 10.8 per cent of all 7.6 million Australian television homes had the ability then to receive free-to-air DTV, up from 9.5 per cent in the previous quarter.[111]

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107 DBA, *submission no. 34*, p. 4.

108 DBA, *submission no. 34*, p. 5.

109 DCITA, *submission no. 66*, p. 7.

110 DBA, *submission no. 34*, p. 5.

111 DBA, *submission no. 92*, p. 1.

2.134 DBA estimated that, based on the September 2005 quarter figures, approximately 985 000 homes, or 13 per cent of Australian television homes, had free-to-air DTV capability.[112]

2.135 The DBA explained that there are some sales of digital receivers which are not reported through the official supplier sales channels or estimated by DBA. These include:

- direct importation of receivers by retailers;
- supply of receivers to retailers by some non-DBA members/non-sales report service subscribers; and
- sales of free-to-air DTV peripheral communication interface cards enabling free-to-air digital television viewing on personal computers.[113]

2.136 DBA also stated that there will be some digital receivers that have been returned to retailers and perhaps some that are no longer being used.[114]

2.137 DBA explained that there are a number of homes in multi-unit dwellings where free-to-air digital signals are converted to analogue at the head end and then reticulated through to residents in analogue form. In the context of considering the cessation of analogue television signals, this latter development may be relevant, but it does not represent home take-up of free-to-air DTV.[115]

2.138 DBA concluded that the above factors would probably boost the 11.2 per cent and 9.5 per cent home up-take figures mentioned to around 12 per cent and 10.2 per cent respectively.[116]

Converted television sets

2.139 DBA's third estimate of take-up looks at the total number of analogue television sets in the marketplace, determining how many of those have been converted. DBA claims that it is generally accepted that the 7.6 million television homes in Australia have on average two working television sets each, producing an Australia wide household total of 15.2 million sets.[117]

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112 DBA, www.dba.org.au/uploads/documents/DBA_Media_Release_03Nov2005.pdf, accessed 4 November 2005.

113 DBA, *submission no. 34*, p. 5.

114 DBA, *submission no. 34*, p. 5.

115 DBA, *submission no. 34*, p. 5.

116 DBA, *submission no. 34*, p. 5.

117 DBA, *submission no. 34*, p. 5.

2.140 DBA, using its estimate of 770 000 free-to-air digital receivers in people's homes (820 000 less 50 000 retailer inventories), calculated that around five per cent of the total working analogue television set population was converted as at 1 May 2005.[118]

2.141 DBA estimates that, at the current level of new television set sales, additions to the working inventory of analogue television sets each year in Australia could be as high as one million. Any television set to be used to watch free-to-air television after any analogue switch off date will need to be converted to digital in one way or another. Currently DBA estimates that there are around 14.5 million unconverted television sets in Australia, with that number being added to significantly each year.[119]

ACMA data

2.142 The ACMA commissioned Eureka Strategic Research (ESR) to conduct community research on digital media in Australian households. ACMA explained:

> The purpose of the research was to understand how people are moving to the various digital media platforms, to look at the drivers and inhibitors towards the adoption of digital terrestrial television and then look at some general awareness and satisfaction issues relating to digital media.[120]

2.143 Consultants from ESR presented to the Committee initial findings relating to free-to-air DTV, contrasting adopter households' motivations and experiences with the expectations and intentions of non-adopter households.[121]

2.144 The research was based on a nationally representative sample of 1 148 households with televisions. Within that sample, 149, or 13 per cent of households were free-to-air DTV adopters.[122]

2.145 The Committee notes that this estimate of DTV penetration is slightly higher than that measured by DBA.

2.146 The research found that, of the 2 608 total televisions in the random sample of 1 148 households, 185, or seven per cent, were free-to-air DTV capable.[123]

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118 DBA, *submission no. 34*, p. 5.

119 DBA, *submission no. 34*, p. 5.

120 ACMA, *transcript of evidence 17 August 2005*, p. 2.

121 ACMA, *transcript of evidence 17 August 2005*, p. 2.

122 ACMA, *transcript of evidence 17 August 2005*, p. 3.

2.147 The Committee notes that this figure is slightly higher than the figure of five per cent presented by DBA.

GfK Australia data

2.148 GfK Australia specialises in retail tracking measurement, and consumer panel and ad hoc research.[124]

2.149 GfK Australia collates the actual sales data from almost every electrical retailer in Australia. Data is obtained from retailer EFTPOS systems, processed and aggregated, and reports are made to the industry on exactly what is being purchased.[125]

2.150 In reference to other DTV penetration measurements and data collection methods, GfK Australia commented:

> Regardless of what the samples are saying about the number of households acquiring, as I say, this is actual sales data. We know how many set-top boxes are being bought, and it is only about 80,000 a year. At that rate of growth, you can aggregate the total number of sales over the last three or four years and it does not come to a very big number when you work that out as a penetration level.[126]

2.151 GfK Australia added:

> I do not think more than seven per cent of Australian households have terrestrial-only digital reception.[127]

2.152 The Committee understands that there are slight differences in the way each organisation has collected and analysed data on DTV take-up. However, the Committee is cognisant of the fact that each estimate is not significantly different to the others, with the end result being that DTV take-up in Australia is very low.

123 ACMA, *transcript of evidence 17 August 2005*, p. 3.

124 GfK, *transcript of evidence 17 August 2005*, p. 15.

125 GfK, *transcript of evidence 17 August 2005*, p. 15.

126 GfK, *transcript of evidence 17 August 2005*, p. 18.

127 GfK, *transcript of evidence 17 August 2005*, p. 18.

Why is take-up slow?

2.153 Free TV Australia claimed initial consumer take-up of digital services was slow due to a number of factors:

- There was no digital consumer equipment available in the Australian market on 1 January 2001. The first digital set top boxes were underwritten by the commercial broadcasters and arrived in early 2001.
- In accordance with the roll-out schedule set by the ABA initial coverage was limited. For example most of the in fill translators in the metropolitan markets were not rolled out until late 2003. This meant that a digital set top box or receiver might work in one part of a metropolitan market, but not another.
- The lack of equipment and coverage made it difficult to promote digital equipment to consumers.[128]

2.154 However, Free TV Australia claimed that take-up achieved by free-to-air DTV has been consistent with the traditional take-up rate for comparable consumer electronic devices such as DVDs, video cassette recorders (VCRs), colour television and radio at the same time after initial launch.[129]

2.155 Network Ten claimed that, while the take-up of free-to-air digital was slow at the outset, the take-up of DTV in Australia compares well with the take-up of DTV in the UK.[130] Further discussion on the UK can be found later in this Chapter.

2.156 The subscription television sector claimed that it has contributed to the take-up of DTV in Australia. Further discussion on the subscription television sector can be found in Chapter 3.

No additional benefits

2.157 The Seven Network claimed that the primary reason for the low take-up of DTV in Australia is the lack of a clear value proposition for consumers.[131]

2.158 Many submissions to the inquiry aired views concerning the lack of additional benefits of taking up DTV.

2.159 Mr Michael Grant, a private individual, provided the following opinion on DTV:

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128 Free TV Australia, *submission no. 31*, p. 9.

129 Free TV Australia, *submission no. 31*, p. 9.

130 Network Ten, *submission no. 60*, p. 8.

131 Seven Network, *submission no. 49*, p. 2.

> The Australian public is clearly not going to endorse digital TV until there are significant benefits. The technical benefits of digital TV (widescreen, clearer pictures) are not going to encourage more than a small (early adopters) percentage of Australian to make the effort to upgrade to digital.[132]

2.160 The Media Entertainment and Arts Alliance remarked that:

> Given that Australians have long been known as very fast adopters of new technologies, the fact that take-up of digital services has been slow indicates that what is on offer — enhanced picture and sound quality — is nowhere near sufficiently attractive to drive the decision to acquire a set-top box.[133]

2.161 The Australian Film Commission stated that the take-up of free-to-air DTV receivers has been slow, and is widely attributed to a lack of compelling new programming offering a point of difference to what is already available to analogue viewers.[134]

2.162 The ACA claimed:

> A current challenge for DTV is that there does not seem to be a particularly attractive proposition for consumers to motivate them to purchase a DTV receiver … there is a paucity of receivers and integrated sets for consumers to choose from. There is also no critical improvement or innovation in services to motivate consumers.[135]

2.163 The ACA added that 'transition is being driven by legislated push rather than market pull from consumers'.[136]

Lack of content

2.164 The lack of additional benefits such as new content is believed to have contributed to slow take-up of DTV in Australia. This opinion was reflected in a number of submissions from viewers and from consumer groups.

2.165 The Seven Network believes that lack of content has contributed to slow DTV take-up.[137] However, the Nine Network and Network Ten believe that increased viewer choice will lead to poor quality programming.[138]

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132 Michael Grant, *submission no. 26*, p. 1.

133 Media Entertainment and Arts Alliance, *submission no. 58*, p. 9.

134 Australian Film Commission, *submission no. 54*, p. 2.

135 ACA, *submission no. 47*, p. 5.

136 ACA, *submission no. 47*, p. 6.

2.166 The issue of additional content is discussed in detail as part of the multichannelling issues in Chapter 4.

Poor consumer awareness

2.167 Broadcast Australia stated that there is a general lack of consumer awareness that DTV will one day replace the analogue service.[139]

2.168 Samsung Electronics Australia Pty Ltd (Samsung) remarked that it is possible that limited awareness and confusion by consumers is contributing to the slow penetration rates.[140] Samsung recommended that, as the regulator of the industry, the Australian Government has a significant role in terms of informing consumers about choice and availability.[141]

2.169 LG Electronics Australia Pty Ltd (LG) claimed there are several reasons why DTV has not been embraced as widely as other technologies, most of which relate to awareness. LG stated that, in a highly technical arena, there has not been a concerted effort to make consumers aware of DTV.[142]

Western Australian survey example

2.170 DTV broadcasting began in Perth on 1 January 2001. Two years later, the Western Australian Department of Industry and Resources (WADIR) conducted a comprehensive and statistically valid analysis of the communications needs of regional Western Australians.[143]

2.171 WADIR explained that it surveyed over 1 000 households randomly selected throughout the state, including a control group of 100 in the metropolitan area.[144]

2.172 One of the questions from the WADIR survey related to people's familiarity with DTV. Households were asked to select a statement which best described their level of understanding of DTV.[145]

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137 Seven Network, *submission no. 49*, p. 2.

138 Nine Network, *submission no. 59*, p. 1; Network Ten, *submission no. 60*, p. 3.

139 Broadcast Australia, *submission no. 41*, p. 12.

140 Samsung, *submission no. 87*, p. 6.

141 Samsung, *submission no. 87*, pp. 6-7.

142 LG, *submission no. 77*, p. 3.

143 WA Government (2003) *Telecommunications Needs Assessment*. Available at www.doir.wa.gov.au/tna, accessed 4 November 2005.

144 WA Government, *submission no. 89*, p. 2.

145 WA Government, *submission no. 89*, p. 2.

2.173 WADIR explained only 4.7 per cent of regional households and 6.9 per cent of metropolitan households had a sound understanding of DTV and had considered its use. Two years after its introduction, 29.3 per cent of regional households and 21.8 per cent of Perth households had never heard of DTV. A further 44.4 per cent of regional and 37.6 per cent of Perth households felt they could not explain the features of DTV.[146]

2.174 WADIR claimed that the situation should have improved in the two years since the survey, therefore slow take-up would tend to indicate that household understanding and appreciation is still poor.[147]

2.175 The WADIR submission recommended that further concerted efforts be made to have viewers clearly understand the benefits and limitations of DTV.[148]

Analogue switch-off uncertainty

2.176 A submission from Mr James Cladingboel, a private individual, stated that:

> It is a widely held belief that analogue broadcasts will not cease in 2008 as indicated by the Government. While this assumption persists, the take-up of DTV will remain extremely slow.[149]

2.177 Retravision Pty Ltd (Retravision) believes there is a great deal of confusion about the analogue switch-off date, and this is creating uncertainty amongst electronics suppliers and consumers. Retravision believes a firm switch-off date needs to be established so there is no uncertainty in the mind of consumers.[150]

2.178 Sony believes current uncertainty around the analogue switch-off date is a major inhibitor to consumer take-up of DTV.[151] Sony also stated that uncertainty is fragmenting industry effort, as resources continue to be directed towards marketing and sales of analogue equipment.[152]

2.179 Further discussion on the analogue switch-off date can be found in Chapter 3.

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146 WA Government, *submission no. 89*, p. 2.
147 WA Government, *submission no. 89*, p. 3.
148 WA Government, *submission no. 89*, p. 9.
149 James Cladingboel, *submission no. 35*, p. 3.
150 Retravision, *submission no. 76*, p. 2.
151 Sony, *submission no. 67*, p. 2.
152 Sony, *submission no. 67*, p. 6.

Bad experiences

2.180 The Committee received evidence concerning negative experiences with the use of DTV equipment. Several submissions were received from people who were very unsatisfied with digital products.

2.181 A submission from Mr Brian Sanders described a disappointing experience:

> … it is little wonder, with word of mouth being such an influence, that take-up has been slow. Why would you risk what in many cases, (certainly in ours), amounts to an investment of thousands of dollars, only to be so totally disappointed and frustrated with the results. I have no hesitation in saying the purchase of a digital television has been one of the most unsatisfactory purchases I have ever made for my household.[153]

2.182 Panasonic AVC Networks (Panasonic) in its evidence discussed DTV reception systems, which include:

> … the antenna that sits on the roof, the cabling and the connectors through to a receiving device. The system itself is only as good as the weakest component.[154]

2.183 Panasonic explained:

> We believe the majority of people have a good experience from digital but there are a number of people who are having a bad experience with digital. The inquiries we get about product at our call centres show us that more than an acceptable level of people are having difficulties with the total system.[155]

2.184 Panasonic summarised the issue of consumers having poor experiences with DTV products:

> The point to all of this is that there needs to be an understanding of these consumer issues so that we can do something about them and about the negative comments about digital broadcasting. The old saying is: 'For everything that goes wrong, you get 10 people who are not going to move into the new technology. If it goes right, they are not going to worry'. [Consumers] have got analogue today and it is fine. It is not giving them a problem.[156]

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153 Brian Sanders, *submission no. 13*, p. 1.

154 Panasonic, *transcript of evidence 28 June 2005*, p. 27.

155 Panasonic, *transcript of evidence 28 June 2005*, p. 27.

156 Panasonic, *transcript of evidence 28 June 2005*, p. 28.

2.185 Further discussion on DTV equipment can be found in Chapter 5.

Changing trends

2.186 Foxtel Management Pty Ltd (FOXTEL) claimed that there is substantial evidence that DTV take-up by consumers is now accelerating rapidly, driven by the existing market forces[157] and participants in the television entertainment market.[158]

2.187 Set-top box sales data from last three quarters provided by DBA indicates that sales of DTV receivers has increased considerably. The Committee is encouraged by this continued increase in set-top box sales.

2.188 Data provided by GfK Australia showed that consumers are embracing digital technology across the board, such as telecommunications, entertainment, audio and vision, imaging and home office.

DTV in other countries

2.189 Australia has the advantage of being able to assess the success of the initiatives in other countries in driving DTV and implementing a rollout plan. This section provides an overview on the rollout plans for the UK, Italy, Germany and the United States (US). It considers the use of use of regional or nationwide switch-off, mandated quotas for HD transmission, and subsidies for low income consumers to purchase DTV equipment.

2.190 Further detail on these initiatives is discussed in subsequent chapters in relation to options for Australia to facilitate greater DTV take-up.

2.191 While most countries are moving to DTV, the UK, Italy, Germany and the US are often cited as representing a diverse range of approaches, initiatives and successes. Each country has experienced challenges in DTV penetration and take-up rates. At the end of June 2005, there were the following estimates of take-up rates:

- UK – 63 per cent;[159]
- Italy – 17.7 per cent;[160]

157 FOXTEL, *submission no. 55, attachment 3*, p. 49.

158 FOXTEL, *submission no. 55*, p. 15.

159 Ofcom, *Digital Television Update – 2005 Q2*, p. 3, www.ofcom.org.uk/research/tv/reports/dtv/dtu_2005_q2/q2_2005.pdf, accessed 2 November 2005

- Germany – 25.7 per cent (as of June 2005 Berlin, Bremen and Hamburg have completely ceased analogue broadcasts);[161] and
- US – 15 per cent.[162]

United Kingdom

2.192 The UK digital television project was established in 2001. Ofcom, the independent regulator and competition authority for the UK communications industries, estimated that by the end of June 2005, 63 per cent of UK homes (15.7 million) were accessing DTV.[163]

2.193 The switch-off process in the UK is coordinated by government bodies, broadcasting and community groups. The analogue switch-off process is being conducted in a region-by-region process with switch-off dates ranging from 2008 to 2012.[164]

2.194 HD broadcasting has only recently started in the UK and has been largely driven by a shortage of spectrum. In contrast, HD production levels are increasing markedly. [165]

2.195 The UK has introduced a logo system to assist consumers in product choices and this has assisted DTV take-up.

2.196 The UK analogue switch-off process is considered by many to be one of the most successful of any country.[166]

Italy

2.197 Italian DTV is expanding rapidly. Almost every major network in Italy has started digital transmissions and in May 2005, 60 per cent of Italy was covered by DTV signal. By parliamentary law (known as the 'Gasparri

160 The Global Information Inc, *Top 10 European Countries by digital TV household penetration (year end)*, www.gii.co.jp/press/fi23873_en.shtml, accessed 2 November 2005.

161 The Digital Video Broadcasting Project, *Digital Television reaches nine million TV households,* www.dvb.org/index.php?id=231, accessed 21 November 2005.

162 Claudy, L., Spectrum Online, *Countdown to the end*, October 2003, www.spectum.ieee.org/oct05/1911/dtvsb1, accessed 3 November 2005.

163 Ofcom, *Digital Television Update - 2005 Q2*, p. 3, www.ofcom.org.uk/research/tv/reports/dtv/dtu_2005_q2/q2_2005.pdf, accessed 2 November 2005.

164 *Digital UK*, www.digitaluk.co.uk/site/index.html, accessed 3 November 2005.

165 Nine Network, *submission no. 59*, p.5

166 Seven Network, *submission no. 49*, p. 2; DBA, *transcript of evidence 25 May 2005*, p. 6; Anthony Gallagher, *submission no. 94,* p. 1.

law'), Italy will switch wholly to DTV by 31 December 2006 with analogue transmissions ceasing by this date.[167]

2.198 However Italy is lagging behind most European countries in the consumer take-up of DTV, with only 17.7 per cent of consumers estimated to have converted to digital by the end of 2005.[168]

2.199 Italy has introduced a subsidy scheme available to households to facilitate the purchase of digital reception equipment. Contributions come in the form of a discount for which the retailer seeks reimbursement from the Italian Ministry of Communications.[169]

2.200 In 2005 Italy formed the HD Council. The main aim of the council is to create and support initiatives to promote the use and dissemination of HD technologies in Italy.[170]

Germany

2.201 In Germany, digital conversion is managed by state media regulators. Germany's main reason for digital transition is to increase the number of broadcasting channels.

2.202 The conversion to digital transmission is being conducted by regions across Germany. The Berlin-Brandenburg region was the first area in Germany to be converted from analogue to digital and this took place over 10 months from October 2002 to analogue switch-off in August 2003. The region of Berlin-Brandenburg had approximately three million households.[171]

2.203 The Berlin-Brandenburg model was considered a success and is being copied for analogue switch-off in other regions across Germany.[172]

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167 Interactive TV, *Submission No. 85*, p. 3; The Ministry of Communications, *Digital Terrestrial Television*, www.comunicazioni.it/en/index.php?IDNews=17, accessed 29 September 2005.

168 The Global Information Inc, *Top 10 European countries by digital TV household penetration (year end)*, www.gii.co.jp/press/fi23873_en.shtml, accessed 2 November 2005.

169 Interactive TV, *Submission No. 85*, p. 4; The Ministry of Communications, *Digital Terrestrial Television*, www.comunicazioni.it/en/index.php?IDNews=17, accessed 29 September 2005.

170 Space and Advanced Telecommunications Expo, 29 September – 1 October 2005, *The HD Council is born in Italy*, www.satexpo.it/en/news/hd.php?c=55623, accessed 29 September 2005.

171 DCITA, 'Driving Digital' – a review of the duration of the analogue/digital television simulcast period. Issues paper, September 2005.

172 DCITA, *submission no. 66,* p. 13, quoting Ofcom Consumer Panel, *Supporting the Most Vulnerable Consumers Through Digital Switchover,* Annex 2: Vulnerable consumers in switchover – Lessons from parallel experiences, pp. 7-11.

2.204 During the Berlin-Brandenburg analogue switch-off, financial assistance was provided through government agencies to two per cent of households for digital reception equipment.[173]

United States

2.205 In 1997, the US Government set a 31 December 2006 deadline for analogue switch-off. However there were several exceptions that could extend the deadline. By the end of 2006, 85 per cent of households, by transmitter area, must be able to receive digital signals before the licences for analogue broadcasters could be revoked. If this target is not met, analogue broadcasting can continue.[174]

2.206 Although the US commenced DTTB in 1998, less than five per cent of households were equipped to receive DTV at the end of 2004. Take-up is reported to be now gaining momentum. It is predicted that by the end of 2005 nearly 15 per cent of US households will have digital broadcast reception equipment, and nearly 40 per cent by the end of 2006.

2.207 However, given the slower than expected rate of adoption of DTV in the US, the 85 per cent of household's criteria is unlikely to be reached by the end of 2006. The US is currently examining options for DTV transition, including implementing a switch-off date and potentially removing or modifying the 85 per cent digital penetration threshold requirement. [175]

2.208 HDTV has emerged as the principal driver of conversion to DTV in the US.[176] While the US Federal Communications Commission (FCC) does not mandate HDTV signals, it does require that HDTV be broadcasted during primetime.[177] All networks now transmit a large number of programs in HD. Sixty per cent of the prime time line up of the two major US broadcasters (NBC and ABC) is in high definition. By 2006 it is estimated that 30 per cent of all programming on the networks will be broadcast in

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173 DCITA, *submission no, 66*, p. 13; ASTRA, *submission no. 50,* p. 17.

174 ITRI, *submission no. 46*, p. 9.

175 Kruger L.G. & Moore, L.K., CRS Report for Congress, *The Digital TV Transition: A brief overview*, August 2005, p. 2, www.dtvcoalition.com/images/media/RS22217.pdf, accessed 3 November 2005; Claudy, L., Spectrum Online, *Countdown to the end*, www.spectrum.ieee.org/oct05/1911/dtvsb1, accessed 3 November 2005.

176 FOXTEL, *submission no. 55, attachment 1*, p. 34.

177 Network Ten, *submission no. 60,* p. 16; Ferree W. K., *Chief of Media Bureau Federal Communications Commission, Copyright Piracy Prevention and the Broadcast Flag*, written statement to the Subcommittee on Courts, the Internet and Intellectual Property Committee on Judiciary, U.S. House of Representatives, 6 March 2003.

high definition.[178] The resolution for HD used in the US is different to that used in Australia.

2.209 The US has mandated that from July 2005 all television sets with screens of at least 91 cm must include a digital tuner. This move was introduced to further drive consumer take-up of DTV. Combinations of DTV monitors and set-top DTV tuners, if marketed together at one price, qualify as an integrated set. The mandate is operating on a five year roll-out schedule and starts with large screen televisions. The requirement for smaller sets and digital VCRs will be phased in from 2005 to 2007.[179]

2.210 The mandate includes all other devices that incorporate television receivers, such as VCRs and personal video recorders (PVRs).

Learning from international initiatives

2.211 Strategies used by overseas countries to further consumer take-up of DTV have included promoting HDTV and imposing quotas or encouraging broadcasters to increase the amount of HDTV available to consumers. HD broadcasting is only just starting now in the UK and other parts of Europe but is increasing rapidly. The transition to HDTV in the US has not yet reached its peak but there is increasing availability of subscribed as well as free-to-air HD content.[180]

2.212 Some European countries have introduced subsidies and have implemented consumer education and promotion strategies such as certified labels on products to further drive the take-up of DTV.[181]

2.213 The Committee notes the experiences of other countries and considers there are valuable lessons to be gained, particularly regarding the cost-effectiveness of subsidy solutions.

2.214 Further discussions of international initiatives, such as mandating digital tuners, set-top box subsidies and labelling options, will be discussed in subsequent chapters.

178 Nine Network, *submission no. 59*, p. 4.

179 Broadcast Australia, *submission no. 41*, pp. 12-13.

180 Nine Network, *submission no. 59,* p. 5.

181 Space and Advanced Telecommunications Expo, 29 September – 1 October 2005, *DTT two years on*, www.satexpo.it/en/news/tvdt.php?c=56456, accessed 3 November 2005.