

FLEXIBLE VISION

**A snapshot of emerging audiovisual
technologies and services,
and options for supporting Australian content**

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Overview

This report is based on a compendium of new and forthcoming audiovisual services as at November 2003. The Australian Film Commission (AFC) has considered what new services for audiovisual content delivery may be in Australia within a decade and how and whether regulation could support Australian content on these new services.

The AFC's principal contention is that decisions about future regulatory options need to be part of a broad communications review rather than settled pre-emptively in the haste of trade negotiations. Our eventual recommendations regarding regulatory options will take a broad perspective based on what the AFC considers to be possible or desirable.

Our examination of future audiovisual services has highlighted the rapidity of change taking place in the domain. Given the pace of technological change and unknown factors about the audience appeal and use of these new services, it is essential that the Australian Government retains the ability to influence their reception in this country. Our extensive research on overseas scenarios in relation to new audiovisual services reveals that governments throughout the world are facing similar challenges and undertaking reviews of regulatory options for content on digital and interactive delivery systems. Clearly the future of audiovisual content lies in the digital realm.

The AFC has examined 18 new forms of audiovisual content delivery. These are:

- broadband websites
- datacasting
- digital film distribution
- digital film exhibition
- digital television: free-to-air multi-channelling
- digital television: subscription
- DVD/video hire and sale market
- high-definition television (HDTV)
- interactive television
- electronic program guides (EPGs)
- personal video recorders (PVRs)
- Internet via TV, and walled gardens
- narrowband Internet content
- peer-to-peer (P2P) networks
- satellite delivery
- t-commerce, m-commerce and advertising
- 2.5G and 3G cellular mobile services
- video-on-demand (VOD) and pay-per-view (PPV)

Nine of these have been introduced into the Australian market, while six others are planned to be introduced in the next two to three years. Australia currently regulates two of these new technologies for content – digital subscription television and advertising – due to the ease of regulatory transference into the digital realm.

Out of the 18 new delivery technologies, seven are currently regulated for local content purposes in at least one country outside of Australia. One other technology – digital film exhibition – is currently not regulated for content but is expected to have the same regulations imposed when the technology is eventually introduced. A further seven technologies are currently being examined by regulatory authorities in Europe, North America and Asia. Only three technologies – 3rd generation (3G) phones, digital film distribution, and peer-to-peer (P2P) networks – are currently unregulated to support local content or have yet to be examined as to regulatory options or support for local content.

For each new content delivery technology, we have provided the following information:

- a definition;
- the current and likely future status for the technology overseas and in Australia;
- current Australian regulation applying to the technology;
- any overseas regulations for local content;
- options for possible future Australian regulation.

It should be remembered that the information presented is based on research as of November 2003, and scenarios are likely to change, given the pace of development in this area.

Issues for future Australian content regulation

Australia has a unique sense of cultural values. The development of Australia's national identity is enshrined in legislation, and regulation must respond in a way that preserves and fosters that objective. Regulation in the free trade environment must recognise the inconsistencies between Australian and other countries' standards of acceptability in content.

Some regulatory challenges exist on a global scale. Where those challenges are consistent with Australia's approach, a harmonised regulatory approach should be favoured. An example of this is intellectual property rights management.

However, Australia's technological imperatives may not necessarily coincide with those of other nations, and Australia's regulatory responses should make domestic imperatives paramount.

Regulators must retain the flexibility to apply appropriate levers in a variety of technological environments. At the same time, regulation should not be used to distort positive forces evolving in Australia.

Australia's regulatory institutions are generally recognised as robust, transparent and reflective of industry and community standards. Those attributes must be preserved. The shift to the free trade environment coincides with growing analysis of the nature and pace of convergence. Convergence will not override the need for appropriate regulation.

Australian policy-makers and institutions in the future will be faced with fundamental questions of regulation: how, and what, is the appropriate regulatory response in a free trade environment? Regardless of the specific issues that will be for regulatory consideration, certain regulatory tools may be needed in future to provide the appropriate response or correct any distortions that may arise. Some of those regulatory tools may be utilised at present. Some of them may be options currently under consideration, while others have yet to be developed.

In the case of intellectual property, it will be regulators, not individual states, who will require the rights to act against rights infringements. The US Federal Communications Commission (FCC), the UK Office of Communications (Ofcom) as much as any Australian regulator, will need the jurisdiction and powers to protect consumers and content producers.

Future analysis and response to regulatory challenges in the free trade environment will have significant implications for Australia's cultural future. As an overarching principle, Australia must retain the right and ability to undertake such a challenge. The sovereignty of Australia's legislative regime is based on the development of its own culture and identity. Appropriate regulation in the audiovisual sector will continue to play a key role in fulfilling that objective.

Content

Regulation through industry standards and legislation must apply equally across all content, regardless of origin. Australian production of film and programming must be supported in substance at a state and federal level. This is partly due to the potentially detrimental impact on demand for Australian content, arising from different notions of acceptability and content standards.

Content is integral to a country's sense of national identity. The development of national identity, character and culture is one of the objectives of Australia's broadcasting legislation. The current regulatory environment promotes Australian cultural values through two broad streams:

- self-regulatory or *voluntary* methods, by which industry develops and administers codes, rules and minimum standards; and
- default or *mandatory* methods, which can apply in conjunction with self-regulatory schemes to enforce content rules. For example, industry codes of practice may become part of an entity's broadcasting licence condition if they fail to comply with its terms.

Aside from these two forms of content regulation, Australian audiences also have particular notions of acceptability. We have systems of classification devised under legislation or codes.

Although specific classification decisions sometimes arouse controversy, standards of acceptability largely reflect a sound cross-section of Australian society. The continuous public debate on standards of acceptability shows a robust interest in defining and re-defining values. Our collective sense of decency, morality and taste is necessarily diverse. Yet, it is still possible to identify certain images and use of language on which most Australian audiences would agree. For example, nudity, swearing and graphic violence are subject to 'formal' classification standards as well as 'informal' notions of public acceptability.

These methods of regulation will continue to be relevant for several reasons. Irrespective of its origins, Australian audiences will judge content according to Australian acceptability criteria. The combined streams of regulation should also apply equally to all content, regardless of its origin. As a general principle, Australian and other countries' notions of acceptability diverge on several levels. Complaints of violence are among the most prevalent in Australia to various regulatory bodies, demonstrating that Australians are quite sensitive to depictions of violence through any channel. However, Australian audiences are generally more liberal than, for example, the US, on subjects such as sexual depiction. The popular programs *Sex and the City* and *The Sopranos* are broadcast on free-to-air television in Australia, but are only available on subscription television in the US.

These inconsistencies in acceptability standards are potentially detrimental to Australian content interests. Australian programs may be less attractive to foreign audiences because they reflect our collectively liberal standards. The need for financial and in-kind support therefore needs to be anticipated – quite apart from regulatory responses, but rather as a product of the inherent differences in Australian and cultural standards of other nations.

Governments, regulators and channels of policy influence must remain focused on that national objective of content. There needs to be continual re-assessment of current mechanisms to fulfil the objective of national identity and cultural development. Equal treatment of content will not in itself achieve this objective. Regulation of content standards does not operate in a vacuum, but instead requires proactive commitment and support for domestic content production. Content regulation was never designed to, nor can it provide on its own, the necessary support for the domestic Australian production industry.

Regulatory institutions

Industry participants in the audiovisual sector are subject to both general and industry-specific laws, administered by different regulators. For example, competition issues are overseen by the Australian Competition and Consumer Commission (ACCC), technical and spectrum issues are the responsibility of the Australian Communications Authority (ACA), and the Australian Broadcasting Authority (ABA) is responsible for regulation of content.

Previously distinct sectors in the audiovisual industry now compete across increasingly convergent markets using a range of different delivery platforms. This convergence of communications technologies and markets is placing growing pressure on the current regulatory institutional arrangements. This pressure has resulted in the Australian Government considering new institutional arrangements for the ACA and the ABA, including a merger of the two regulators.

The rapid acceleration of technological change and the potential expansion in the number and type of audiovisual services on the market give rise to uncertainty as to what regulations and regulatory institutions may be required in the future to ensure new audiovisual service providers comply with Australia's social and cultural objectives.

As the number and variety of audiovisual services expand, it is likely that some services will fall outside the current regulations with respect to domestic content and national culture. Therefore, it is important for Australian regulators to be in a position to pre-empt and adapt to necessary changes brought about by technological change. Non-uniform regulation of competing services will not only weaken the effectiveness of the regulations but will also distort industry structure and competition.

The rapid pace of technological change in the audiovisual sector requires the Australian Government to retain full power to regulate these industries to respond to and pre-empt

necessary changes to protect Australia's social and cultural objectives. Accordingly, the right of Australian regulators to develop, oversee, monitor and enforce local issues with respect to the audiovisual industry needs to be retained.

Regulatory incentives vs regulatory enforcement

Providers of audiovisual services do not always have an incentive to take account of public benefits such as the enhancement of national culture and the maintenance of community standards, being primarily focused on providing competitive, profit-maximising services. Regulatory mechanisms designed to protect such public benefits vary across jurisdictions. Australia's approach to regulation, based on industry participation, ensures an appropriate balance between these sometimes conflicting objectives.

The current regulatory framework in Australia, which enables industry participants to provide significant input in the development of industry regulations, provides a unique and appropriate mix of incentives to industry players, ensuring providers of audiovisual services have regard for community standards and cultural objectives. Accordingly, the current regulatory framework in Australia must be retained to ensure future audiovisual service providers in Australia continue to have regard for these objectives.

Convergence

Convergence must not be perceived as an opportunity to dispense with sound regulatory reasoning and transparent regulatory processes. In the free trade context, the making of, or refraining from, regulation should not be dependent on assumptions about the impact of convergence. Rather, convergence actually challenges regulatory institutions to re-focus on fundamental imperatives. One of those is necessarily the fostering of Australian cultural values and identity. This should be retained as a fundamental tenet of future regulatory decision-making and is consistent with the current regulatory regime.

Summary of regulatory options

The AFC believes that there are six broad policy levers available to government to achieve current and future cultural policy objectives. They are:

- government funding;
- levies;
- content obligations (eg quotas);
- content access regimes;
- promotion and positioning obligations;
- classification and prohibition.

Governments will need to maintain maximum flexibility as it is impossible to know today what technologies will emerge or become widely used.

Several of the technologies under consideration would at first glance pose difficulties for regulators. However, given the nature of most of the content under consideration here, the nature of the likely infrastructure or service providers and the size and nature of the content producers, these issues should not be insurmountable. It is reasonable to assume that companies in the supply chain for these services, with a capacity to control their delivery, will be resident in Australia, carry on other business activities in Australia or require Australian licences to conduct their businesses. Therefore, it is likely that they will be within the jurisdiction of, or caught by, Australian regulation.

Existing Australian content regimes focus on audiovisual material and emphasise Australian drama, children's programming and documentaries. In the online environment new social and cultural policy objectives may emerge which government may seek to meet by regulation.

Content formats

Depending on the nature of the delivery mechanism and the uses to which it is being put, there will be a wide range of content and formats, some of which either do not exist today, or are in limited use.

Traditional film and television formats will continue to be in use and, in our view, will remain the dominant means of audiovisual communication. However, there may be a change in transmission standards as digital technologies become more widespread. Digitisation and the addition of interactivity will change the way traditional-format programming is viewed. Programs will become multi-layered with different options within a program.

In addition there is likely to be a proliferation of short-format and mixed-media products which combine audiovisual images with text and graphics. These will be accessed through computers, mobile telephones and other devices. In many cases, the same basic content is likely to be re-purposed and adapted to be used on several media.

Finally, on existing and new delivery platforms there will be a proliferation of choice of content. This is irrespective of whether these platforms are subscription or advertising funded. Online entry points (portals/home pages), electronic program guides and on-screen navigation tools will be critical to how people use media. In this environment prominence, promotion and navigation become critical.

Funding schemes

The Australian Government has in place a number of budget-funded schemes to support the production sector, including some relatively limited funding to support new media production. New schemes could be created to support the development of interactive or multimedia content for different delivery platforms. Funding may also be made available to re-purpose existing content

for different platforms. These schemes could take the form of grants and subsidies or tax incentives for investors.

The government might also look at schemes to levy industry to contribute to a production fund. This could be for use in traditional production or new media production. The Canadian Government has such a scheme that applies to its subscription television sector.

Such a charge could be levied against:

- general revenue;
- subscription revenues (including on a pay per view basis);
- subscriber numbers;
- revenue relating to particular transactions or classes of transaction (eg the purchase of merchandise associated with a film or television program);
- the number of times particular content is accessed or downloaded; and
- programming expenditure (similar to the existing Australian subscription television model).

The scheme might operate as an alternative to a quota system. That is, operators have the option to 'play or pay'.

Where consumers receive multiple services from the same provider (bundling) there may need to be some mechanisms to determine which revenues associated with the service, are to be subject to the levy. The telecommunications regime provides examples of cases where such accounting procedures have been put in place (eg determining 'eligible revenue' for the purposes of the universal service obligation).

Content obligations

In the same way that Australian content standards apply to broadcast and subscription television they could be applied to other platforms and to developments in traditional media. This is true of expenditure quotas and transmission quotas.

An expenditure quota could be applied to any medium that acquires content. An equivalent to a percentage of expenditure on all or subsets of content could be required to be spent on new Australian content. For example, where a mobile phone company acquires short-format programming it could be required to spend a percentage of the price paid on new Australian content.

The creators of content may also seek to promote that content using short-format programming (music videos, promotion of feature films). Governments could require that a percentage of the actual or attributable value of access to bandwidth be spent on new Australian content.

Where expenditure occurs on a pay-per-view basis (ie the service provider only pays for content which is actually viewed) the percentage charge could be tied to the number of users.

Expenditure quotas could result in actual expenditure by the service provider or be used to determine the amount to be contributed to a fund described above. Alternatively, it could be put towards permitted co-productions, similar to the way the subscription sector works today.

A transmission quota could be applied to any service which has a broadcast stream. For example, any service which offers interactive television services could be required to ensure that a percentage of those services be created in Australia or be attached to an Australian-made program.

If the government wished to encourage the development of an Australian interactive television industry it could require that a percentage of Australian programming must contain interactive elements or that a percentage of program expenditure must be directed to development of interactive services. This coupled with the existing Australian content requirements for broadcast television could see the creation of a significant amount of interactive television.

Interactive advertising and online transactions utilising streaming video will become increasingly popular. This will include t-commerce, which is commerce using an interactive television. A scheme similar to the current advertising quota could be introduced, at least in relation to 'walled

garden' services (a 'walled garden' refers to a browsing environment that controls the information and websites the user is able to access).¹

Similarly, a transmission quota could be applied to high-definition television (HDTV) or any other digital transmission standard. A percentage of HDTV content could be required to be Australian or new Australian content. There could also be subquotas relating to prime time HDTV or children's programming etc. When digital radio is introduced any additional content, such as data or visual images which accompany the service, could also be subject to a transmission quota.

On-demand services, whether online or over a digital television platform, create different problems. However, it would be possible to require providers of these services to ensure that a certain percentage of the content available on their platforms is Australian.

Similarly the sale or rental of videos or DVDs could be subject to regulation requiring a certain amount of Australian content to be available. In the United States there has been a considerable growth by businesses such as NetFlix which combines online access and DVD rental. Services such as these could also be subject to various forms of content regulation.

The government may make different rules for different types of content, giving greater weighting to feature films or series drama than to other less sophisticated content. In seeking to have Australian content disseminated as widely as possible the government may make rules to encourage the re-use or re-purposing of Australian content.

Within any of these schemes (and the existing free-to-air transmission quota arrangement), the government may wish to change the mechanism for determining whether or how quotas are met. The Australian Broadcasting Authority (ABA) is currently looking at the possibility of allowing broadcasters to trade their obligations, so that one broadcaster with an excess of Australian content could take on some of the obligation of another. This type of system is similar to the way that some of the subscription channels or platforms meet their expenditure responsibilities.

This type of system could easily be applied to other environments, for example with digital multi-channelling, a provider could create a channel with a preponderance of Australian content and meet its obligations that way.

Another scheme suggested is that obligations can be linked to 'eye balls'. A broadcaster's children's quota could be met if the ratings demonstrated that a particular number of children watched a certain amount of programming.

This system would work particularly well in an on-demand or online environment where the number of users of content can be easily determined. A service attracting more users or viewers to Australian content could more easily discharge its obligations.

A hybrid scheme might allow a service provider to meet its obligation if it attracted enough of an audience to Australian content or, if it did not, by contributing to a fund or some other mechanism.

The government might also look at schemes that allow service providers to meet their obligations in different ways, such as through different combinations of access across multiple channels or media.

Content access regimes

Content access regimes would require platform owners to grant access to the creators of Australian content. There are several variants.

One is a 'must carry' rule where the government requires that certain content be made available on a particular platform, for example, digital subscription TV platforms carrying the national broadcasters, or all of the broadcast networks.

Another variation would see the government requiring platform owners to allocate a certain amount of capacity within their systems to creators of Australian content without specifying who those creators are. Existing US cable operators in many jurisdictions are required to carry public interest channels, with a government authority having the power to adjudicate if a channel meets the criteria.

Finally, the government might choose to create a weightings scheme for access seekers and give creators of Australian content an advantage in seeking access to scarce bandwidth.

If the government decided to extend the definition of the universal service obligation (USO) to access to broadband services it might adopt one or more of these methods to ensure that recipients of USO services could obtain access to Australian content.

Promotion and positioning

In an environment where the number of choices is very large, it is one thing to get content onto a platform, another entirely for users to be able to find it. With electronic program guides, barker channels, portals, navigational systems and a proliferation of advertising and cross promotion (including using push technology), it is increasingly hard to know exactly what content is available.

Governments might seek to remedy this by requiring Australian content to be available in certain places within a suite of services or promoted or advertised in particular ways.

Channels carrying Australian content or to which an Australian content standard applies may be required to be placed within a certain range close to the beginning of a multi-channel service.

Where there is a terrestrial digital multi-channel service with primary and secondary services, the provider may be required to meet all or some of its Australian content obligations on the primary channel.

In an online or on-demand service there may be a requirement that a certain amount of Australian content should be accessible immediately from the first entry point to the service. Alternatively, a certain amount of Australian content must be accessible within a limited number of clicks or page turns.

In any of these services there could be a requirement that a certain amount of Australian content be made available as part of the basic or entry price service.

There could also be obligations to ensure that Australian content was prominently advertised on the platform and elsewhere, at least as prominently as other forms of premium content.

Classification or prohibition

The government will want the right to regulate to maintain community standards of taste and decency and to limit availability of services such as online gaming. In the online environment this is difficult to do. However, online content regulation does exist today and there is no reason why it could not be extended to other media.

See Appendix 1 for a table summarising the regulatory options discussed in this section.

Investigations into regulatory options undertaken or underway around the world

Canada

The Canadian Radio-television and Telecommunications Commission (CRTC)² undertook a **review of new media services** in 1999.³ The CRTC examined whether 'new media' was broadcasting and therefore subject to Canadian content rules under the Broadcasting Act. Their conclusion was that new media *was* broadcasting – that, with a technologically neutral definition, the mere fact that a program is delivered by means of the Internet, rather than by means of the airwaves or by a cable company, does not exclude it from the definition of 'broadcasting'.

In considering possible intervention or support for Canadian content on the Internet, the CRTC canvassed both an incentive-based approach and one involving regulation.

Ideas for *incentives* to support for Canadian new media content included:

- direct funding programs targeted specifically at Canadian new media content;
- various tax incentives to support the new media industry;
- content-specific industry development initiatives; and
- activities to stimulate consumer demand for new media content.

The main suggestions for *regulatory measures* were:

- requiring ISPs to contribute a portion of their annual revenues to content development funding;
- requiring ISPs and/or content aggregators to ensure shelf space and a place of prominence for Canadian new media content; and
- requiring Canadian ISPs to provide links to Canadian websites.

The CRTC is also currently undertaking a **review of interactive TV (ITV) services**.⁴ In this review, the CRTC identified three broad categories of interactive services. These were:

1. enhanced programming services;
2. non-traditional stand-alone services; and
3. Internet-over-TV services.

Enhanced programming services are described in the ITV report as including services that provide viewers with, among other things: access to more detailed information on a program or an advertisement through the addition of text, graphics, still images or audiovisual content; and the opportunity to conduct 't-commerce', such as ordering products featured in a program or advertisement.

In considering whether such program-related services could be termed 'broadcasting', the CRTC believes a policy grey area exists.

Most submissions on this question considered that 'enhanced programming' might be considered broadcasting under specific circumstances. Some parties considered that even activities referred to as enhanced programming, but consisting primarily of alphanumeric text, would fall under the definition of broadcasting if they were 'program-related', or were 'integral' to a program.

The CRTC agreed that the concept of a 'program-related' activity should be one of the key factors in determining which ITV services, if any, fall under the definition of broadcasting, and what regulatory treatment they should be subject to as a result.

The CRTC has now initiated proceedings to examine what constitutes a program-related interactive service.⁵

The 'non-traditional stand-alone service' category includes services that have not previously been accessible through a television set and are offered independently of programming services. Services of this type include TV portals and virtual channels. Portals are often similar to collections of Internet content although TV portals may only be accessed through a particular ITV service provider rather than through a generic Internet connection. Virtual channels are portals that provide access to a sort of website that contains proprietary content related to television programming.

The CRTC posits two tests for non traditional stand-alone services, to determine whether or not they fall under the definition of 'broadcasting':

1. The Commission would first have to examine each service individually to determine if it is a 'program', ie that it does not consist predominantly of alphanumeric text.
2. If the service is found to be predominantly non-alphanumeric, the second test that it must pass is that its transmission is to *the public*.

Regarding the second test, the CRTC has stated:⁶

Some Internet services involve a high degree of 'customizable' content. This allows end-users to have an individual one-on-one experience through the creation of their own uniquely tailored content... This content, created by the end-user, would not be transmitted for reception by the public. The CRTC therefore considers that content that is 'customizable' to a significant degree does not properly fall within the definition of 'broadcasting' set out in the Broadcasting Act.

By contrast, the ability to select, for example, camera angles or background lighting would not by itself remove programs transmitted by means of the Internet from the definition of 'broadcasting'. In these circumstances, where the experience of end-users with the program in question would be similar, if not the same, there is nonetheless a transmission of the program for reception by the public, and, therefore, such content would be 'broadcasting'. These types of programs would include, for example, those that consist of digital audio and video services.

The CRTC has not yet had to make any decisions on the scope of 'customizable'.

Internet-over-TV services are essentially Internet services that use the television set and set-top box to mimic some of the basic functions of a personal computer. Since these are presumably stand-alone services, each service would need to be individually assessed against the tests set out under 'non-traditional stand-alone services'.

European Union

The Council of Europe (CoE)⁷ is currently completing an extensive review of the European Convention on Transfrontier Television (ECTT) 1989 to examine whether new media technologies should fall within its ambit. A report on possible options (the Grünwald Report)⁸ posits three regulatory options in adjusting the framework. These are:

- keep the existing framework, apply content regulation to conventional TV services only and leave multimedia content unregulated;
- create program services of a second order with the ECTT (subcategory) and apply existing regulation only in part to newly included services; or
- leave the ECTT as it is and adopt a Multimedia Convention, which would include content regulation for specific media.

Hong Kong

The Hong Kong Information Technology and Broadcasting Bureau⁹ produced a consultation paper in 2000 entitled *Digital Terrestrial Broadcasting in Hong Kong*.¹⁰ It recommended that priority be given to the domestic free and pay television program services on multiplexes during at least the initial stage. (Multiplexes carry several television program services at the same time, ie multi-channelling.) See *Digital television: free-to-air multi-channelling*.

The government is currently reviewing the paper's proposals, with a view to developing a thorough policy recommendation for digital terrestrial broadcasting.

The Hong Kong Broadcasting Authority¹¹ is also currently reviewing whether TV programs broadcast via the Internet should be regulated by their Broadcasting Ordinance. See *Broadband websites*.

New Zealand

NZ On Air¹² commissioned a report in 2001 titled *New Technologies and the Digital Future: The Impact on New Zealand, Local Content and NZ On Air Funded Programs*.¹³ This document made a number of recommendations concerning future regulation of local content in the new media future. New Zealand is undergoing a period of re-regulation for local content in broadcasting recently announcing a voluntary quota system.

Singapore

The Media Development Authority (MDA)¹⁴ was formed in January 2003 by the merger of the Singapore Broadcasting Authority (SBA), the Films and Publications Department, and the Singapore Film Commission (SFC).

The MDA has produced a regulatory blueprint for Singapore titled *Media 21: Transforming Singapore into a Global Media City*. The policy aims to develop Singapore into Asia's leading media marketplace and financing hub, producing high-quality digital content and infrastructure.

South Africa

South Africa is undergoing a review of digital broadcasting, and its Digital Broadcasting Advisory Body¹⁵ released a discussion paper in late 2002. It is examining the gamut of new technology issues including digital television, HDTV, datacasting, multi-channelling, enhanced services and interactive television.

UK

The UK's Department of Trade and Industry (DTI)¹⁶ in conjunction with the Digital Content Forum (DCF)¹⁷ examined the broadband content industry in the UK in 2002 to identify areas where government involvement may be necessary, based on the expected evolution of the market. From this report, the Digital Content Forum recommended a number of pilot initiatives where government involvement would be most effective. See *Broadband websites*.

A-Z **of new and emerging audiovisual** **technologies and services**

Broadband websites

See also: *Video-on-demand and pay-per-view, Peer-to-peer networks*

Definition: Broadband websites are configured to exploit the increasing use of broadband technologies, including cable modems, digital-subscriber lines (DSL) and satellite delivery, to access the Internet. Broadband sites can be 'hosted' in any country and made available anywhere in the world.

No strict boundary differentiates a broadband site from a narrowband site, except that broadband sites tend to contain content that requires a much greater rate of data transfer from the site to the user, such as high-quality streaming video and audio services. TV streamed via broadband is included within broadband websites.

Consequences for current content delivery: It is expected that broadband sites will increasingly challenge other forms of content delivery, such as television, DVDs, compact discs (CDs), videos, newspapers and proprietary electronic games stations (eg Sony PlayStation). Broadband users spend 50-60 per cent more time online,¹⁸ further challenging free-to-air TV etc for eyeball time and share of wallet.

Current and future status

International: Many popular broadband sites are based overseas, particularly in the US and, to a lesser extent, Europe. These sites tend to be either general content portals (eg America Online (AOL)), or revolve around a specific theme, such as the display of movie trailers (eg IFILM and ComingSoon.net) or the presentation of MP3 music files.

Screen Digest reports that broadband DSL subscription – a broadband delivery service that uses high frequencies transmitted across normal phone lines to send data to a computer up to 126 times faster than via 56K modems – grew 150 per cent worldwide in 2002, with broadband taking on mass-market status in Korea.¹⁹ DSL is growing faster in Japan than anywhere else, while Western Europe has overtaken DSL take-up in North America, quadrupling in Europe in 2002.²⁰ *Screen Digest* also reports that the UK recently passed the one million broadband cable Internet subscriber mark and one million DSL subscribers.²¹ Furthermore, a broadband Internet-via-satellite service is set to be introduced in the UK in January 2004.²²

According to Adams Media Research, the growth of broadband penetration in the US during 2002 was greater than growth of US DVD household penetration in the same year.²³ The number of broadband homes in the US grew by nearly 60 per cent in 2002. This increase in broadband penetration led to a rise in the number of movies and music files downloaded, an area likely to expand with the growth of US Internet VOD services such as CinemaNow and MovieLink. CinemaNow owned by Lions Gate Entertainment has signed Twentieth Century Fox Home Entertainment and Warner Bros. MovieLink has signed Artisan, Universal, Warner Bros, Sony, Paramount and MGM. Films will be available on the same day as pay-per-view.²⁴

AOL is also working to increase its broadband subscriber base from 2.7 million with content deals with organisations such as broadband movie provider MovieFlix.com, Major League Baseball and ABC News.

Jack Valenti, President of the Motion Picture Association of America, recently argued before the Permanent Subcommittee on Investigations Senate Committee on Governmental Affairs Hearing on Privacy and Piracy that the future of the film industry lies in the Internet:²⁵

The Internet, without doubt, is the greatest delivery system yet known to this planet. It has the potential to reshape how we communicate, how we buy and how to enlarge the dispatch of knowledge on a scale never before exhibited. The movie industry is eager to use the Internet to deploy our movies, thousands of titles of every genre, to homes in this country and around the world. We want to give American families additional options for watching movies. They can make their choices easily, as well, when they want to see a movie.

Already, the industry is working on video-on-demand (VOD), so that everything is instantaneous. Now available are sites for legitimate movie viewing such as MovieLink, Cinema Now and others.

There is only one barrier to expand this immense bounty of movies and other entertainment for consumers. It is a forest thickly crowded with outlaws whose mission in life is to hijack movies and upload them to the Internet. Once we defeat this illegitimacy, the consumers of America will be the cheerful beneficiaries of a never-ending source of high-value entertainment in a lawful environment.

Now Broadband TV, a new pay TV service, will be delivered via the Netvigator broadband Internet service from September 2003 in Hong Kong. It plans to deliver 23 channels and is aiming for 20,000 subscribers per month.²⁶ In Japan, Softbank introduced a cable TV broadband service with VOD and Internet phone services.²⁷ Disney also plans to begin streaming its cable service via broadband soon.²⁸

Australia: Australia has produced a modest number of broadband sites (eg ABC Online and BigPond) that have been operating over the last couple of years. Its broadband penetration rate is currently around four per cent, but is predicted to increase to 10–15 per cent by 2006. According to Nielsen, the number of broadband users in Australian homes has grown 150 per cent since April 2002, with one million Australians accessing the Internet by broadband in early 2003.²⁹

Current Australian regulation

Other than censorship laws, there are currently no content regulations governing broadband Internet services: see under *Narrowband Internet websites*.

On 21 July 2000, Minister Alston made a Ministerial Determination that Internet services such as audio and video streaming would not be considered broadcasting services under the *Broadcasting Services Act 1992* (BSA). While the determination provides a substantial degree of certainty to the industry, it is subject to parliamentary scrutiny as a disallowable instrument for the purposes of section 46A of the *Acts Interpretation Act 1901*. It is clear that this issue may be revisited. If services providing television programs and/or radio programs over the Internet were classified as broadcasting services, these services would be subject to licence conditions under the appropriate broadcasting licensing regime.

In terms of content regulation, the Australian Government provides financial support for Australia's broadband application and content developers through the \$2.1 million Broadband Content Fund and the \$12.4 million Cooperative Research Centre for Interaction Design. The government has also provided a further grant of \$150,000 for the Film Industry Broadband Resources Enterprise (FIBRE), building on previous funding of \$600,000 for demand aggregation in the post-production industry.

Overseas scenarios

Canada: The CRTC has determined that delivery of a program by means of the Internet, rather than by means of the airwaves or a cable company, does not exclude it from the definition of 'broadcasting' (see box page 9).

However, at present, the CRTC has exempted new media under s. 9(4) of the Broadcasting Act on the basis that regulation would not contribute in a material manner to the implementation of broadcasting policy for Canada. A review is scheduled for 2004–2006. The CRTC has acknowledged that conditions in the new media market change at a rapid rate.

The CRTC also considered whether any incentives or regulatory measures were needed to prompt existing or new industry participants to develop, produce, promote and distribute Canadian new media content and services (see page 9).

The CRTC believes that at present the circumstances that led to the need for regulation of Canadian content in traditional broadcasting do not currently exist in the Internet environment. Market forces are providing a Canadian presence on the Internet that is also supported by a strong demand for Canadian new media content. If Canadian content on the Internet diminishes, is under

threat, or disappears altogether, the CRTC maintains the power to intervene and regulate to support the production/creation of Canadian Internet content.

The Canadian Government does, however, fund broadband content through the money raised by the broadcasting distribution undertakings (BDUs). All broadcasters are required to participate in the production of new quality Canadian programming through a financial contribution to be directed to an independent production fund – typically a minimum of five per cent of annual gross revenues. 80 per cent of these funds are directed to the Canadian Television Fund and 20 per cent of the contribution must be directed to more independently administered production funds, one of which is the Bell Broadcast and New Media Fund. This fund supports projects which include a new media/broadband component as well as a television component. The television component must be designated as a drama, variety, documentary, children's program or educational programming.

Broadband content support is provided by other government organisations including:

- *Department of Canadian Heritage*: The Applied Research in Interactive Media (ARIM) program is worth about C\$6.5 million annually. Its objective is to accelerate the development, demonstration, promotion and diffusion of advanced e-content for digital networks, including broadband applications.
- *Canarie Inc.* (Canadian Network for the Advancement of Research, Industry and Education Inc): This is a not-for-profit corporation supported by its members, project partners and the Federal Government working with the Department on e-content.
- *Telefilm Canada*: The New Media Fund is worth about C\$10 million annually and is directed towards providing development assistance, distribution assistance and sectoral development assistance.

European Union: The EU currently makes a distinction between television broadcasting services that provide television programs intended for reception by the public, and 'information society services' supplied on individual demand. The former is covered by the Television Without Frontiers Directive, which imposes content rules, and the latter by the Directive on Electronic Commerce, which does not.

The Council of Europe (CoE) is currently completing an extensive review of the European Convention on Transfrontier Television (ECTT) 1989 to examine whether new media technologies should fall within its ambit. A report on possible options³⁰ posits three regulatory options in adjusting the framework. See box page 10.

The European Broadcasting Union (EBU) has suggested that it take on an enlarged role in the broadband arena in order to maintain a cultural presence in cyberspace. The *Report on Media Pluralism in the Digital Environment* (October 2000) also argued the case for mandatory inclusion of certain culturally-relevant 'public service' sites in major portals.³¹

G7 countries: The G7 Ministerial Conference on the Information Society identified eight core principles when dealing with appropriate regulatory frameworks for broadband. One of these was 'Promoting diversity of content; including cultural and linguistic diversity.' This was also one of the 10 core principles for the Asia Pacific Information Infrastructure (APII) decided on by Asia Pacific Economic Cooperation (APEC) ministers in 1995.³²

Hong Kong: Currently, Internet service providers that wish to offer pay TV services do not need to obtain a costly broadcasting licence because content transmitted over the Internet is not regulated by the Broadcasting Ordinance. However, the Hong Kong Broadcasting Authority is currently reviewing whether such services should be regulated by this Ordinance.

If television programs broadcast via the Internet were deemed to be regulatable, they would need to screen a stipulated minimum amount of local content such as news bulletins, current affairs, documentaries, advisory and arts and culture programs in a specified period of time.

Korea: The Korea IT Industry Promotion Agency (KIPA) was established in 1998 with a budget of US\$260 million. KIPA's two major aims are to promote the digital content industry in the creation of content and software for games, animation, the Internet including interactive VOD, mobile gaming etc, and to build and support digital content distribution infrastructure.

The Korean Broadcasting Commission (KBC) governs terrestrial television, Internet broadcasters, and production and distribution (regulation however, requires the final approval from the Ministry of Culture and Tourism). The KBC currently imposes local content quotas and independent production quotas on terrestrial and 'other' broadcasters including cable and satellite broadcasters.

Internet services operated by broadcasters are regulated by the KBC but it is unclear whether local content rules extend to these services. The KBC can deliberate on the content of Internet broadcasting but a laissez-faire stance has been taken so far. Other ISPs are regulated by the Ministry to protect Korean youth. The KBC is currently undertaking consultations with the National Assembly and other institutions in order to establish a new efficient regulatory framework in the converged environment.³³

New Zealand: New Zealand's 'new technologies' report (see box page 11) makes specific recommendations about broadband websites. It recommends that NZ On Air establish its own broadband portal streaming video and its own archive of local programming. This would be akin to the public library in the book world – a repository of information and entertainment, specifically NZ, accessible to all at reasonable charges.

The report also recommends that NZ On Air be proactive in developing broadband content. Producers must be required to include proposals for non-linear interactive content along with any proposals for conventional broadcast.

Singapore: Singapore's Media Development Authority (MDA) has begun a number of programs under its Media 21 blueprint (see box page 11) to encourage the development of content for broadband, television and film. Schemes related to broadband content include:

- *Digital Content Development Scheme:* a seed fund which aims to support the development of innovative ideas and concepts into real content products such as pilot episodes for original TV animation, technical demos for game series and interactive media projects;
- *Digital Technology Development Scheme:* which aims to support the development of original and innovative products or processes that lead to significant improvements in bringing value-added services to the broadcasting industry, or that lead to tangible outcomes such as investment for the new products, introduction of new services or adoption of new technology;
- *Digital Broadcasting Development Fund:* which aims to support the development of original, innovative and high-quality digital broadcasting content and services for digital TV, including projects related to development of info-educational programs which promote online learning, eg with links to educational websites; and other interactive content.

UK: Three of the pilot schemes recommended by the UK's Digital Content Forum after a review in 2002 (see box page 11) were accepted by the Minister of E-commerce and Competitiveness and a feasibility study was released in May 2003. The study made recommendations on three initiatives to assist in the evolution of a successful, competitive and productive broadband content creation industry in the UK.³⁴ These initiatives will stimulate the creation of content, and develop new skills and jobs. The proposed initiatives are:

- the *Broadband Visitor pilot*, which will provide consumers with broadband experiences in the context of travel and tourism and is intended to demonstrate the return on investment from investing in broadband content for marketing and sales;
- the *Broadband Channel*, a 'market-maker' that will commission new and exciting broadband content from the UK's pool of highly talented and innovative creative companies; the Broadband Channel will showcase creative companies and communities of interest to share their content with wider audiences;
- the *Broadband Collaborative Working pilot*, demonstrating the productivity gains offered by collaborative working using broadband-enabled tools on a 'pay as you go' basis.³⁵

Potential Australian regulation

Broadband content such as streaming media, MP3 files and interactive games hosted on Australian websites could be made subject to minimum Australian content quotas (see page 6).

- **Transmission quotas:** Broadband services or Internet service providers (ISPs) could be required to ensure that a percentage of the material made available on those services is Australian.
- **Expenditure quotas:** A percentage of the amount a platform operator or service creator pays to acquire content could be spent on new Australian content. A number of broadband services already spend significant amounts on content for their self-branded portals, keeping access to such content unmetered. This could also apply to content creators who pay to have their content shown.

'Must carry' and content access regimes may be relevant (see page 7). For example, broadband ISPs could be required to carry the national broadcasters' broadband or web TV service, or all of the broadcast networks' broadband or web TV services. Or there might be a weightings scheme to give creators of Australian content an advantage in seeking access to scarce bandwidth.

Another possibility may be to allow Australian sites, whether provided by the ISP or not, to be unmetered in counting monthly download limit charges – as Telstra currently does for Telstra-branded content.

Supporting appropriate **positioning and promotion of Australian content** could also be effective (see page 8). Broadband website portals carrying Australian content could be required to make it accessible immediately from the first entry point or within a limited number of clicks.

A **production fund levy** may also be appropriate (see page 5).

The implications of the 2000 Ministerial Determination (see *Current Australian regulation* above) that Internet streaming of content is outside the scope of a 'broadcasting service' are relevant for several reasons.

Firstly, the delivery of content via a 'walled garden' may have inherent advantages for Australian content. A 'walled garden' refers to a browsing environment that controls the information and websites the user is able to access. It also commonly refers to the content that wireless devices such as mobile phones have access to if the content provided by the wireless carrier is limited.³⁶

Walled gardens have the effect of reducing the cost of broadband access and delivery, since Internet costs associated with trans-Pacific carriage are necessarily excluded. This collectively lower cost of broadband is consistent with a key Australian policy driver to encourage broadband take-up. It is arguable that walled gardens hosted in Australia will, due to the nature of walled gardens, predominantly feature Australian content. The positive regulatory environment for walled gardens may be interpreted as detrimental to foreign interests, although it is more likely neutral. However, it operates positively for two Australian imperatives: broadband take-up and encouraging domestic content.

Secondly, Australian and foreign legislative schemes treat regulation of content differently in several respects. For example, the concept of 'freedom of speech' does not translate comfortably to some aspects of the Australian broadcasting regulatory regime. Although Australian audiences are generally reluctant to refer to 'censorship', the take-down notice provisions in the BSA have been used with a degree of regularity since coming into force.

The impact of current Internet TV regulation ('Internet TV' in the sense of TV delivered via the Internet) is unsettled and may be subject to alternative interpretations in future, or challenged. Australia needs to ensure that, where Internet TV regulation fulfils policy, legislative and social objectives, the operation of that regulation is not impeded by competing outside influences.

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Datacasting

See also: *Digital television: free-to-air multi-channelling; Digital television: subscription; High-definition television; Interactive television: electronic program guides; Internet via TV, and walled gardens*

Definition: Datacasting is most often used for massive distribution of information (data) in a one-way broadcast, using the same terrestrial transmission system as television. From a regulatory point of view, however, in order to stop a datacast becoming a de-facto television station, the Australian Government placed restrictions on the genre of content that can be datacast.

Two types of operator can datacast:

- incumbent free-to-air broadcasters (using the spare spectrum left over after transmitting their digital television signals); and
- stand-alone datacasters who have purchased a datacast licence and spectrum.

The main restrictions on datacasting content are restrictions on the provision of certain genres of television programs (eg drama, sport and current affairs) and restrictions on the provision of audio content.

Consequences for current content delivery: Due to the high expenses involved with datacasting, Australian viewers are likely to be faced with foreign news, foreign education services and foreign information that bear little relationship to our culture or society.

With commercial broadcasters burdened with the added costs of enhanced services, Australian content may be under threat in a number of ways.

Firstly, funds allocated to Australian content may be taken away to fund the new enhanced services. Thus, although commercial networks will still be compelled to produce Australian content, they may produce lower-quality rather than high-end drama. Secondly, with expenses expected to be high, some Australian content may not be open to enhancement. That is, cheaper imported enhanced programming may be all that is available for viewers who would be likely to choose enhanced foreign content over un-enhanced local content.

Similarly, it is important to have a workforce skilled in the new datacasting technology. Without a skilled workforce, un-enhanced Australian content will be forced to compete against enhanced foreign content, a competition that would ultimately be one-sided.

Datacasting could open up new digital content production opportunities for Australian content producers. Under the current restrictions on genres, these opportunities are more likely to focus on games developers, educational content providers, documentary makers, interactive TV (ITV) application developers and graphic designers.

Current and future status

International: In most international markets, datacasting is the domain of existing broadcasters. They provide high-speed Internet access via digital television; unidirectional push services that enable them to deliver Internet content to personal computers; and ITV services that enable the television viewer to access data directly from the TV set by activating an icon on the TV screen.

Disney plans to launch its own video-on-demand service called MovieBeam using datacasting technologies to download content to storage devices for viewing on the TV.³⁷

Until digital TV penetration reaches a critical mass, it will be difficult to make judgements on whether datacasting-type services are attractive to consumers.

Australia: Datacasting spectrum was to be offered by auction but the auctions were abandoned in 2001 when it became clear there was little commercial interest. Following a review in 2002, the government decided not to proceed with the long-term allocation of datacasting transmitter licences at that time, although incumbent broadcasters can still provide licensed datacasting services using their digital spectrum. The government reserves the right to auction datacasting licences at some point in the future, and has agreed to make spectrum available for trials, on a temporary basis.

Nevertheless, the Australian Broadcasting Authority (ABA) has allocated datacasting licences to all the commercial networks and SBS, and awarded the ABC a datacasting licence in October 2003.³⁸ The ABC described the nature and content of its proposed datacasting service as the 'delivery of software upgrades to digital terrestrial set top boxes [and] data associated with the provision of an electronic program guide'.³⁹ The first commercial datacasting licence was awarded to Broadcast Australia Ltd which plans to launch at the end of 2003.

Datacasting licences impose program genre restrictions on licensees designed to encourage the provision of a range of services different from traditional broadcasting services. Two categories of program are restricted. Category A programs include drama, sports, music, infotainment or lifestyle, documentary and 'reality television'. Category B includes news or current affairs programs, financial, market or business information bulletins and weather bulletins.

However, qualifications to the genre restrictions include allowing datacasters to provide short extracts of Category A and B programs. Datacasting services can also include electronic program guides, Internet content, electronic mail, information services, educational programs, interactive computer games, text or still images, and advertising or sponsorship material.

Current Australian regulation

Other than the genre restrictions mentioned above, there are no regulations specifying the amount of Australian content that should be made available through datacasting.

As it currently stands, the statutory legislation that regulates enhanced services, multi-channelling and datacasting does not address or favour Australian content issues and does not explicitly benefit Australian content. Much of the legislation, particularly with regards to the ABC and SBS has a negative impact on Australian content. For example, the ABC will be unable to datacast children's material, which is predominantly Australian.

Overseas scenarios

Canada: The CRTC will monitor the development of any data services offered to ensure that the policy objectives set out in the *Broadcasting Act* (including Canadian content rules) are met. Any issues that may emerge with respect to the provision of data services by broadcasters will be examined as necessary.⁴⁰

South Africa: South Africa currently has local content quotas for television and has raised the issue of regulation for local content in new media technologies in its current review of digital broadcasting (see box page 11).

Potential Australian regulation

Consistent with the government's mandate to foster and encourage the growth of a creative digital content industry cluster in Australia, it would seem essential to mandate minimum Australian content for datacasting applications such as interactive games, educational content, documentaries and advertising.

Both Commercial Television Australia (CTVA) – formerly the Federation of Australian Commercial Television Stations (FACTS) – and the Screen Producers Association of Australia (SPAA) have made submissions to the government on incentives and an extension of the current Australian Content Standard.

The FACTS submission to the Productivity Commission Inquiry proposed the establishment of a production fund 'drawn from a modest levy on subscriber revenues for subscription broadcasting services, and on datacasting services (if they are permitted to provide television-like services)'.⁴¹

SPAA's recommendations were that:

- standards for minimum levels of Australian content apply to datacasting services;
- the current genre restriction for datacasting services be relaxed;
- access to the digital spectrum be regulated;
- licensees be required to source program material from the independent production sector.⁴²

Digital film distribution

See also: *Digital film exhibition, Video-on demand, Peer-to-peer networks*

Definition: Digital film distribution is the delivery of digitally compressed and encrypted full-length motion pictures, trailers, advertisements and other audiovisual 'cinema-quality' programs to cinemas equipped with digital projection systems, via the Internet, dedicated networks, DVD, digital tape, a digital storage device or satellite transmission. Films may also be distributed to individuals via broadband, peer-to-peer (P2P) networks and video-on-demand for screening on computers and home entertainment systems.

Consequences for current content delivery:

In discussing digital film distribution, Harvey B. Feigenbaum writes in *The Effects of New Technologies on Cultural Protectionism*:⁴³

Distribution is often the principal stumbling block to a viable film industry. In England for example, many more films are made than can be distributed locally. Part of the reason for this is that distribution companies are controlled by American firms that have a significant interest in distributing Hollywood films at the expense of British ones.

Feigenbaum argues that digital projection opens up significant possibilities. Firstly, digital cinemas may be able to bypass the major US-controlled distributors, thereby allowing multiplexes to show local, independent, low-budget or foreign films as blockbusters reach the end of their runs. Secondly, digital distribution dispenses with film entirely. Since printing and physically distributing copies of the film to cinemas is a major expense, digital distribution represents a cost saving. Instead, digital images of movies can be distributed by satellite directly to theatres where they are downloaded and shown. This saves money in terms of production as well as distribution.

Current and future status

International: The technology and its application is still in development. Piracy concerns have been stifling support by studios.

Scott McQuire, in a soon to be published article titled 'Slow train coming? The transition to digital distribution and exhibition', describes the development of digital exhibition as follows:

Throughout the 1990s digital technology entered film production and rapidly altered both the production process and the audience's experience, as complex soundscapes and special effects became the hallmark of cinematic blockbusters. By 1999, the prospect of an end-to-end digital cinema, or cinema without celluloid, seemed to be in sight. Digital distribution and exhibition were extolled as particularly attractive prospects, and a number of test sites were established in the USA. However, the last four years have demonstrated that significant issues need to be resolved before there will be broader implementation of digital cinema – particularly the area of costs.

The fundamental sticking points which emerged from the attempt to kick start digital distribution and exhibition between 1999 and 2001 were the lack of a standardised technology, and the concomitant difficulty of devising an economic model.⁴⁴

To move on these issues, Julian Levin (Executive Vice President Digital Exhibition and Special Projects at Twentieth Century Fox) led a scheme called Digital Cinema Initiatives (DCI) in March 2002 to form a consortium consisting of the seven major Hollywood studios to establish the system architecture for digital distribution and exhibition.

DCI is currently charged with setting a framework for a number of critical issues, including the resolution of digital projection systems, forms of encryption and compression, and the nature of the digital 'package' which will replace reels of film.⁴⁵

China has announced that it will establish a satellite distribution network for digital cinema and home distribution, converting 200 cinemas to digital cinema format with satellite transmission hubs.⁴⁶

Arts Alliance has launched the UK's first digital cinema network.⁴⁷ The UK's first film to be released digitally was *Bright Young Things* on 3 October 2003.⁴⁸

Australia: Any future roll-out of digital cinema in Australia will be heavily influenced by both the timetable and the technological model adopted in the US. Digital cinema might provide impetus to renegotiate costly distribution practices. One hurdle is the cost of generating a digital master. While this is not a major item in terms of Hollywood budgets, it is potentially prohibitive for modestly budgeted local films.⁴⁹

Current Australian regulation

Australia currently imposes no regulations on film distribution.

Overseas scenarios

UK: Quotas for distributors have been used in the past – the UK for example, which imposed a quota of 7.5 per cent of films distributed in 1928. This rose to 30 per cent but was abolished in 1948.⁵⁰

Singapore: As a part of its Media 21 initiative (see box page 11) the Media Development Authority (MDA) is seeking to develop Singapore into a digital cinema distribution hub. MDA plans to play a catalytic role in the transformation of Singapore into a major player in the digital cinema sector through close partnerships with industry players to develop both digital content and digital distribution facilities. No specific regulations have been announced yet.

Potential Australian regulation

Regulation of content imported into the country could be subject to import duties, tariffs or levies. Quotas similar to the discarded British model could be introduced.

Digital film exhibition

See also: *Digital film distribution*

Definition: Digital film exhibition involves screening digitally compressed and encrypted full-length motion pictures, trailers, advertisements and other audiovisual 'cinema-quality' programs in cinemas equipped with digital projection systems.

e-cinema, or electronic cinema, captures all forms of audiovisual delivery via electronic means.⁵¹

d-cinema or digital cinema refers to the high-end digital screening of films in cinemas equipped to screen such material.⁵²

Consequences for current content delivery are expected to include:

- more flexible programming options: exhibitors will be able to expand the number of screens devoted to a popular film without having to wait for extra prints to be shipped. They will also be able to improve the quality and versatility of pre-feature advertising;
- productivity gains in running theatre operations, following significant and expensive investment in new technology;
- access to new or improved revenue streams: once theatres are networked and able to display digital content delivered by cable or satellite, it becomes possible to use the big screen for live broadcasting.⁵³ *Screen Digest* reports that alternative content such as sports events and pop music concerts will provide European exhibitors with an additional US\$30 million annual revenue.⁵⁴

Current and future status

See *Digital film distribution: Current and future status*

Current Australian regulation

Australia currently imposes no local regulations on film exhibition aside from those related to film classification. However, subsidy has been and is currently provided to the touring exhibition of Australian films, video and interactive digital media programs through the Australian Film Commission's Industry and Cultural Development program.

In the past, a quota was introduced in Victoria in 1927, requiring cinemas to screen at least 1,000 ft (one reel) of Australian production in each program. This was easily met by including a cheap travelogue or newsreel. The Royal Commission that sat from June 1927 to February 1928 proposed establishing a quota for Australian and Empire productions but no legislation followed, at least partly out of deference to American distributors and Australian exhibitors, which opposed a quota. Australian production plummeted in 1929.⁵⁵

Overseas scenarios

There is a long history of regulation in the cinema exhibition market overseas, and digitisation does not preclude the continuation of such measures. Media Salles' *White Book of the European Exhibition Industry*⁵⁶ pinpoints numerous measures currently in existence:

- subsidy to the exhibition industry:
 - subsidies for investment in modernisation,
 - subsidies for exhibition itself: seeking, on the whole, to maintain exhibition in less favourable geographical areas, particularly rural cinemas (Denmark, France); art and experimental cinemas providing so-called 'quality' programming such as the current UK digital art house cinema model,
 - subsidies for the release of copies: eg France guarantees funds for the release of copies, resulting, in 1992, in the release of nearly 3,000 copies of 100 French and foreign films (including some American films). Two other countries, Denmark and Germany, maintain the release of copies, particularly in rural areas, but both do this at a much more modest level;

- direct management of cinema operation by public authorities;
- tapping resources through tax and using transfer systems to redistribute exhibition revenues to other sectors, like production or authors' rights societies, or in the form of a 'forced saving' destined for the exhibition sector: Taxes vary from 5.3 per cent in France to 25 per cent in Denmark. This tax in France played an important part in the modernisation of cinemas during the 1970s and 1980s, a movement started by the circuits and certain independent operators. The amount of public subsidy granted to the sector is sometimes correlated to the rate of taxation (eg. Denmark);
- regulation of exhibition outlets: France and Portugal are the only countries where outlets are regulated according to the different mediums of exhibition. In Spain and Germany, outlets are only regulated for films that have been publicly subsidised. It is worth noting that the practices fixed by the professional associations can have a quasi-regulatory authority: this is the case in the Netherlands and Germany. Where it is not regulated, video distribution tends to follow six to nine months after cinema showings;
- cinema programming quotas: Local content quotas exist in Austria, Italy, Spain, Brazil, Pakistan, China, Sri Lanka and Korea and are supported by the General Agreement on Tariffs and Trade (GATT);
- a cinema ticket levy: Has been used extensively throughout the world to fund local filmmaking, including France, Germany, Sweden.

European Digital Cinema Forum (EDCF)

The EU is working to establish standards for digital cinema and has formed the EDCF to function as a network for European co-operation on e-cinema and d-cinema activities. Their remit is to identify key issues, gather information and create models to encourage private investment and public support schemes as well as to stimulate European production with a broad scope of quality content for e- and d-cinema.

UK Digital Screen Network

The UK Film Council has just announced the Digital Screen Network scheme. The Council will invest £13 million to set up 250 digital screens in approximately 150 existing cinema sites around the UK (over a quarter of UK cinema sites) showing a broad selection of films which could never before gain the wider distribution that is now possible using efficient digital projection and delivery. Money will also be spent in ensuring the creation of cost-effective digital copies of films so that film distribution companies can maximise the audience opportunity offered by the circuit.

In return for providing cinemas with this technology, the Film Council is looking to earmark a certain proportion of screening time for showing specialised films, which to date have had limited opportunity to be seen outside London and other major cities. Specific emphasis is being placed on providing this service in areas currently defined as 'areas of social exclusion', and it will give visible ethnic minorities the opportunity to see more films in their own language.

Potential Australian regulation

Any of the above regulations are an option for Australia. Support for the high costs of digitisation or digital production is likely to be necessary in order that Australian content be screened in digital cinemas.

Digital television: free-to-air multi-channelling

See also: *Datacasting; Digital television: subscription; High-definition television; Interactive television*

Definition: The digitalisation of terrestrial free-to-air television networks enables much greater channel-carrying capacity for broadcasters. In Australia the spectrum awarded to each of the incumbent free-to-air broadcasters enables them to carry three to four digital channels of equivalent quality to the current analogue service. Given that the *Broadcasting Services Act 1992* states that each broadcaster is only obligated to broadcast one channel in digital, an exact replica of the existing analogue channel, this leaves spare capacity for two or three more channels. This spare capacity may also be used for datacasting.

Consequences for current content delivery: Additional channels will obviously increase the demand for content by broadcasters. However, given the focus commercial free-to-air networks have on their key value proposition of delivering mass audiences to mass advertisers, it should be expected that they would be very cautious about fragmenting their audiences across too many broadcast channels. Hence, it is likely that the content forming these channels will not be of a type that will be in direct competition to the main channel and may well be highly specialised, niche or complementary to the main channel.

Current and future status

International: As digital television has been introduced around the world some countries have vigorously encouraged the introduction of new digital channels (eg the UK), while others (eg Australia and the US) have mainly opted to use the new technology to deliver better quality pictures via high-definition TV. Latest figures from *Screen Digest* show that at the end of the first quarter of 2003, 48.6 per cent of UK TV homes received multi-channel services, mostly digital. Digital penetration is at 44 per cent.⁵⁷

Australia: Current penetration rates of digital terrestrial TV are less than two per cent, although this is expected to lift as free-to-air broadcasters offer new services such as ITV and HDTV.

Only the ABC and SBS are currently allowed to use more than one digital channel. Up until mid-2003, the ABC was broadcasting *ABC Kids* and *Fly* on its two additional digital multi-channels, while SBS is still broadcasting a World News channel and an Electronic Program Guide (EPG) on its additional digital channels.

To date, commercial free-to-air broadcasters have demonstrated mixed interest in multi-channelling. The Nine and Ten networks appear opposed to utilising the additional channels, while the Seven network has expressed interest. In any case, current legislation forbids commercial broadcasters from multi-channelling, until a review in 2005.

Current Australian regulation

In a fashion similar to that used in the US, each of the metropolitan commercial and national broadcasters was obliged to commence television broadcasting in digital mode by 1 January 2001.

There is currently no requirement for minimum Australian content on additional digital multi-channels. As it currently stands, the statutory legislation that regulates enhanced services, multi-channelling and datacasting does not address or favour Australian content issues and does not explicitly benefit Australian content.

Overseas scenarios

UK: In the context of public service broadcasting, a digital licence fee, in addition to the existing television licence fee, was recommended by the Davies Review Panel. The government chose to increase the extant television licence fee instead.

European Union: Under the recommendations of the recent Grünwald Report (see box page 10) digital television programming would be included under the definition of broadcast television

services and thus continue to have content regulated with respect to origin of program. Another report by the Steering Committee on the Mass Media in October 2000⁵⁸ recommended that the basic principles on programming and advertising embodied in the European Convention on Transfrontier Television (ECTT) should in principle apply to all digital television services.

France: The Conseil Supérieur de L'Audiovisuel (CSA)⁵⁹ has recently introduced licences for terrestrial digital television. In so doing, they based criteria for a licence on the criteria established by article 30-1 of the law of September 30, 1986. These criteria included: the preservation of the diverse nature of socio-cultural expression; and commitments in terms of the production and broadcasting of cinematographic and audiovisual works.

Canada: The Canadian Radio-television and Telecommunications Commission (CRTC) will treat digital technology as a replacement for analogue technology and has issued transitional digital licences.⁶⁰ The CRTC's existing policies and regulations, as well as the conditions of licence currently applicable to a broadcaster in respect of its analogue television service, will also apply to any transitional digital programming service. These include requirements for the provision of 60 per cent Canadian content during the broadcast year and 50 per cent during the evening broadcast period, and for the exhibition of a minimum of 8 hours per week of priority programming where required by condition of licence. A minimum of 50 per cent of the unduplicated digital programming must be Canadian.

The CRTC's transition policy allow for the licensing of multicast programming. The multicast service will generally be subject to the same Canadian content, logging and other regulatory requirements that apply to existing television services.⁶¹

Singapore: As a part of its Media 21 policy (see box page 11), the Media Development Authority (MDA) has established a Digital Broadcasting Development Fund to support the development of original, innovative and high quality digital broadcasting content and services for digital TV including projects related to HDTV, ITV, online learning, and EPGs.

South Africa: South Africa is undergoing a review of digital broadcasting: see box page 11.

Hong Kong: In its *Digital Terrestrial Broadcasting in Hong Kong* consultation paper of 2000, the Hong Kong Information Technology and Broadcasting Bureau recommended that priority be given to the domestic free and pay television program services on multiplexes during at least the initial stage. Multiplexes carry several television program services at the same time (ie multi-channelling). The paper recommends that the number of multiplexes be limited to six.

Combined multiplex licences where networks would own an entire multiplex and fill it with their own programming have been rejected for a separate licensing system so that each service within a multiplex is licensed.

Since the current players have been given priority, local content standards continue to apply in this environment for these services. New television program services will also be licensed under the Broadcasting Ordinance (Cap. 562) which imposes local content rules. Licence conditions should be similar to the general conditions in the existing domestic free or domestic pay television program service licence.

The government is currently reviewing the paper's proposals, with a view to developing a thorough policy recommendation for digital terrestrial broadcasting.

Potential Australian regulation

Options could include:

- extension of current Australian content obligations;
- content access regimes;
- positioning and promotion of Australian content;
- government funding and/or production fund levies – to support the development of digital or interactive content.

See *Summary of regulatory options*, page 5.

Digital television: subscription

See also: *Interactive television, Broadband websites*

Definition: Digital television services usually received by HFC cable (hybrid fibre coaxial cable network) or satellite and supplied on payment of subscription fees ('subscription TV' is commonly referred to as 'pay TV'). A handful of subscription services are being delivered via broadband Internet in Japan and Hong Kong.

Consequences for current content delivery: The digitalisation of subscription services allows ease of transition into interactive television. Foxtel has recently stated that it proposes to roll-out an interactive TV service, once Telstra has digitised its HFC cable network.

Current and future status

International: Most developed economies are undertaking a similar process of digitalisation to Australia.

Australia: The cable networks are currently being digitised.

Current Australian regulation:

Legislation was enacted in 1992 providing for the introduction of subscription television services in Australia. An Australian content requirement applying to drama channels only was also introduced. The licence condition at s.102 of the *Broadcasting Services Act 1992* required that for each year of operation, at least 10 per cent of the licensee's program expenditure be spent on new Australian drama programs. A review of this requirement was undertaken in 2002-2003 by the ABA. The results of this review are currently with the Minister of Communications.

Overseas scenarios

UK: As a member of the EU, the UK requires terrestrial, cable and satellite broadcasting service providers to comply with Article 4 of the *Television Without Frontiers* Directive and devote a majority of transmission time to European works. In addition, a proportion of programming provided by all providers in specific categories must be sourced from independent production companies.⁶²

European Union: There is extensive content regulation (via quotas) for subscription television services through Europe, all based on the *Television Without Frontiers* Directive. 'Must carry' rules are applied across most EU nations.

Canada: Under the Broadcasting Distribution Regulations, all licensees of cable services, Direct-to-Home (DTH) satellite distribution undertakings, and multi-point distribution systems (MDS) must ensure that a majority of video and audio channels received by subscribers are Canadian programming services. Expenditure requirements also apply, with distribution service providers required to make financial contributions to an independent production fund which will support the production of new, quality Canadian programming. Typically the contribution is expected to be a minimum of 5 per cent of annual gross revenues, of which a minimum 80 per cent must be directed to the Canadian Television Fund, and the remainder directed to one or more independently administered funds.

Under a new framework for digital subscription services, the CRTC has licensed two categories of new services: Category 1 and Category 2 services.⁶³

Category 1 services: are specialty services that make a strong contribution to the development, diversity and distribution of Canadian programming and are the most attractive services for early digital distribution. The CRTC's Category 1 criteria for licensing included among others: contributions to Canadian programming, including minimum commitments to exhibition (not less than 50 per cent by the end of the licence term), expenditures and original production.

These services will have digital access privileges and genre protection to assist them to launch vibrant services during the uncertain period of digital rollout.

To make Category 1 services available to the maximum possible number of digital subscribers, distributors who offer programming services to the public using digital technology are required to distribute all Category 1 services appropriate to their market on a digital basis. This requirement is imposed by regulation.

Category 2 services: The CRTC recognised that some services were prepared to accept the risks of launching on a digital-only basis without the types of regulatory support that will be provided to Category 1 services.

The CRTC expects applicants for Category 2 licences to commit to minimum Canadian content exhibition requirements. For English- and French-language specialty services, the minimum is 35 per cent. For ethnic specialty services, it is 15 per cent. Music video services **are** also required to exhibit a minimum of 30 per cent Canadian music videos.

New Zealand: New Zealand's 2001 *New Technologies and the Digital Future* report (see box page 11) recommended that the programs funded by NZ On Air since 1989 should be made available to a New Zealand Gold pay channel, which should be offered to one of the pay TV providers. In the short to medium term though, the report recommends quotas be imposed. It also recommends that free-to-air channels be carried on all cable and satellite platforms and be given prominence on the EPG.

Japan: 'Must carry' rules are applied to cable services. These require local stations to be broadcast simultaneously. Local stations must broadcast at least 10 per cent self-produced programming. Commercial channels must devote at least 10 per cent of their programming to education and 20 per cent to cultural shows.

Potential Australian regulation

Options could include:

- extension of current expenditure standard: the digitalisation Foxtel and other pay TV networks are undertaking do not affect the expenditure requirement already imposed. This current expenditure requirement is open to change;
- introduction of transmission quota: an altered version of the present transmission quota system for free-to-air television could be imposed pay TV broadcasters, whereby a broadcaster's subquota could be met if the ratings demonstrated that a particular number of people watched a certain amount of programming. A service attracting more users or viewers to Australian content could more easily discharge its obligations;
- positioning and promotion of content;
- 'must carry' and Australian content access regimes;
- government funding and/or production fund levies to support the development of digital or interactive content.

See *Summary of regulatory options*, page 5.

DVD/video hire and sale market

See also: *Video-on-demand and pay-per-view*

Definition: Digital Versatile Disc (DVD) is an optical storage medium used widely to hold films for viewing in the way a VHS video is used. Its increased capacity allows for extra features to be included such as a menu, scene selection, audio commentary, extra audiovisual clips and web links. Recordable DVDs can be used with DVD recorders to record material in much the same way as a video cassette recorder (VCR). Both DVD players and DVD recorders are available on the market.

Consequences for current content delivery:

- DVDs, DVD players and DVD recorders are expected to replace VCRs and VHS (Video Home System) as standard home entertainment technologies, particularly when DVD recorders reach critical mass in the market.
- DVDs are of a higher quality than VHS tapes, enabling DVDs to be collected like CDs.
- A decrease in the rental market is expected, with a concurrent increase in sell-through arising from the building of DVD collections.
- DVD players and recorders are increasingly being added to cable set top boxes, satellite receivers and personal video recorders as part of home entertainment systems.

Current and future status

International: According to *Screen Digest* DVD players are the most rapidly adopted video technology in history with DVD hardware penetrating 5.6 per cent of television households worldwide in 2001.⁶⁴ Forecasts place the US currently at number one with a DVD hardware installed base of 46 per cent of TV homes. Australia/New Zealand is next with 22 per cent.⁶⁵ The household penetration of DVD players and recorders in Western Europe by the end of the first half of 2003 was 26.4 per cent and is expected to reach 35.4 per cent by the end of the year.⁶⁶

The vast majority of these are currently DVD players: DVD recorders have yet to become mass consumer items in any territory. According to research group In-Stat/MDR, they accounted for less than three per cent of the DVD hardware market in 2002 with over one million units shipped worldwide that year.⁶⁷ Strategic Analytics predicts annual sales of DVD video recorders worldwide will reach 42.1 million in 2008, with ownership of DVD recorders at 40 per cent of homes in the US, 33 per cent of homes in Europe and 62 per cent of homes in Japan.⁶⁸

In 2002 DVD software revenues passed VHS revenues for the first time.⁶⁹ In the US, the National Association of Video Distributors believes that by the end of 2003, DVD will represent up to 75 per cent of US video revenues for some studios.⁷⁰

DVD is now the most popular video format in Europe with consumer spending on DVD in 2002 surpassing VHS for the first time.⁷¹ More significantly though, European and US consumers spent more on buying and renting DVDs than they did on going to the cinema for the first time in 2002. Spending on DVD in Europe increased from €3.3 billion in 2001 to €6.4 billion in 2002. By comparison, spending on box office in Europe increased from €5.4 billion to €5.7 billion.⁷²

In the US there has been considerable growth in DVD delivery businesses such as NetFlix, which combines online access and DVD rental. NetFlix has signed over 1 million subscribers. There are currently 17 distribution centres and the goal is 24 by the end of 2003. The company's revenue for 2002 jumped 101 per cent to US\$152.8 million and it has a stated aim of reaching US\$1 billion in revenue.⁷³ The number of online DVD rental companies continues to grow in Europe.⁷⁴

DVD growth will be increased further through their addition to cable set top boxes, digital broadcast satellite systems and personal video recorders.

Australia: Wholesale revenue from videotape and DVD distribution has grown by 234 per cent since 1990, reaching \$825.9 million in 2002. The proportion of revenue to distributors from VHS tapes sold to video hire outlets has gradually been declining, from 76 per cent in 1990 to 16 per

cent in 2002, reflecting a general shift across the video distribution industry from rental to sell-through, and, more recently, from tapes to DVDs.

Revenue from VHS tape sales to sell-through retailers rose by 132 per cent between 1990 and 1997 but has been falling in recent years as tape sales are replaced by DVDs. DVD sales went from \$18.4 million in 1999 (the first full year for which DVD statistics were recorded) to \$502.7 million in 2002, of which \$405.4 million came from sell-through retailers. DVDs now account for 61 per cent of revenue to distributors.⁷⁵

Total DVD player and recorder sales in Australia for 2002 reached 903,284 units.⁷⁶ However, DVD recorder prices have remained prohibitively high and the Australian market for DVD recorders is small, with 1500 sold a month.⁷⁷ It is expected that with price falls their popularity will increase.⁷⁸

Hoyts and Home Screen Entertainment announced in November 2003 that they will launch an Internet-based DVD home delivery service, HomeScreen,⁷⁹ similar to the Netflix model in the US.⁸⁰ This follows already established companies QuickFlix,⁸¹ Meteor⁸² and WebFlicks.⁸³ Due to its connection to Packer Broadcasting Limited (PBL), HomeScreen will have access to promotion through Australia's most popular Internet site, ninemsn.com.au, as well as PBL magazines and the PBL-owned Ticketek.⁸⁴

Current Australian regulation

Aside from censorship rules administered by the Office of Film and Literature Classification (OFLC), there are no content regulations applying to DVDs; nor are there levies on recordable DVDs.

In early 2003, Screenrights and the Australian Performing Rights Association (APRA) called for a levy of 3–10 per cent on each CD-R and DVD-R. A similar scheme was created in 1989 under the Copyright Act but was ultimately repealed in 1993 as it was deemed by the High Court to be a tax rather than a levy.⁸⁵

Overseas scenarios

France: A two per cent levy is placed on the sale of videocassettes and DVDs for private use, established by the 1993 Finance Law. The levy is used to fund local film production. The levy was previously due by the publishers and importers of videocassettes, or people who acquire videocassettes from within the EU and who are established in France.⁸⁶ This was altered in July 2003 so that the levy applies now to the retail price before sales tax rather than the video publisher's net income, and the retail outlet pays the levy. This shift in application will roughly double the funds (to 40 million euro) used to subsidise production. The levy is collected by the Centre National de la Cinématographie (CNC).⁸⁷

Canada: Canada currently imposes a blank audiovisual media levy by the Canadian Private Copyright Collective (CPCC), which covers audio tapes, CD-Rs and CD-RWs (recordable CDs and re-writable CDs). There is a proposal to extend this to DVD-R, DVD-RW, DVD+RW, DVD-RAM, and non-removable electronic memory cards, and flash memory cards intended for MP3 players.⁸⁸

Japan: Since May 2000, a one per cent royalty on sales of DVD players and recorders is given to the copyright organisation. The royalty is limited to hardware products sold in Japan. Manufacturers of digital VHS recorders in Japan are also subject to the one per cent rate. The royalty is designed to compensate program rights holders for potential unauthorised duplication of copyrighted material.⁸⁹

Brazil: A national inventory quota is imposed on distributors requiring a minimum of 20 per cent of local product. However, because there is little local product available, this quota is ignored.⁹⁰

Potential Australian regulation

- Application of levy similar to French regulation.
- 'Must carry' and Australian content access regimes – could be applied to Australian DVD sales and rental services available over the Internet.
- Transmission quotas (on-demand services) – sale or rental of videos or DVDs could be subject to regulation requiring a certain amount of Australian content to be available. Services such as HomeScreen and QuickFlix could also be subject to various forms of content regulation.

High-definition television (HDTV)

See also: *Digital television: multi-channelling*

Definition: High-definition television (HDTV) involves the provision of pictures which are substantially sharper and clearer than those currently available. It is fundamentally a product of the number of lines on the screen and the number of pixels per line (which define, respectively, the vertical and horizontal resolution). The HDTV picture is also a third wider than the current analogue format with a width to height ratio (or 'aspect ratio') of 16 x 9 compared to the squarer 4 x 3 aspect ratio of the picture we see now.

HDTV is a higher grade of digital television requiring more of the frequency spectrum or bandwidth. Using the finite bandwidth for HDTV broadcasts means less bandwidth is available for multi-channelling, datacasting, interactive services etc.

Consequences for current content delivery: HDTV programming must be captured in an appropriate format, such that it meets the required standards for HDTV resolution and quality. This generally means that television programs must now be directly shot using HDTV cameras, or on 35mm film, which can then be transferred to HDTV.

Every part of HDTV production in front of the camera will now also require feature film style attention. The major challenge for local content producers is that the cost of HDTV productions will be considerably higher than is the case for video production for standard definition television. This will be particularly so for high-cost drama series, which are the most susceptible to competition from lower cost imports, as noted by the ABA in its submission to Department of Foreign Affairs and Trade (DFAT) on the free trade agreement.

Current and future status

International: The US is one of the few countries in the world (along with Japan and Australia) to mandate the adoption of HDTV. HDTV programming is currently broadcast in the US over the four major free-to-air television networks and, increasingly, on the cable and satellite pay TV networks in most major cities. The US far and away leads the world in the amount of content produced and broadcast in HDTV format. The Fox network has recently announced plans to broadcast at least 50 per cent of its prime-time schedule in HDTV.⁹¹

Japanese public broadcaster NHK and other commercial networks, including the Nippon Television Network (NTN), Tokyo Broadcasting System (TBS) TV Asahi and Fuji TV, plan to start broadcasting HDTV programs in December 2003.⁹²

Australia: Current penetration rates of digital terrestrial television are less than two per cent, although this is expected to lift as free-to-air broadcasters offer new services such as ITV and HDTV.

At present, all free-to-air networks are providing at least 20 hours of HDTV programming per week. By late 2002, there were estimated to be around 35,000 HDTV receivers in the Australian market.

Overseas scenarios

Canada: All Canadian programs aired during the evening broadcast period by the licensee of a transitional digital television undertaking, whether duplicated or not, are to be broadcast in the HDTV version, where such a version exists. Hence local content rules are in practice extended.

Singapore: As a part of its Media 21 policy (see box page 11), the Media Development Authority (MDA) has established a Digital Broadcasting Development Fund to support the development of original, innovative and high-quality digital broadcasting content and services for digital TV including projects related to HDTV telecasts, eg key high-profile national events and quality drama.

South Africa: South Africa is undergoing a review of digital broadcasting (see box page 11).

Current Australian regulation

In order to promote the take-up of digital television and, in particular, high-definition television, the commercial networks are obliged to broadcast 1040 hours of high-definition television per year.

As of July 2003, all free-to-air TV networks are required, by legislation, to transmit their main broadcasting signal in HDTV, for at least 20 hours during per week (or 1040 hours per year). However, there are no Australian content requirements within this regulation.

Much of the content broadcast in high-definition mode is film or high-quality digital material imported from the US. This is supplemented by locally produced product including popular daytime programming such as Bert Newton on Ten and Kerri-Anne Kennerly on Nine.

Potential Australian regulation

Extension of current Australian content standard regime

Given the discriminatory effect that HDTV requirements have on drama in particular, this genre should be subject to minimum Australian content quotas.

A percentage of HDTV content could be required to be Australian or new Australian content. There could also be subquotas relating to prime time HDTV or children's programming etc.

The AFC made the following recommendations to the 1999 Review of Digital Television Format Standards (High Definition Television).

- There should be mandatory amounts of Australian content within any requirements that are set for HDTV broadcasts to avoid Australian programs being 'ghettoised' in standard-definition television (SDTV) while foreign programming dominates the prestigious HDTV end. The rationale for this is the same as that which applies to the overall content regulations
- Programs shot on Super 16 film should be regarded as meeting the standard required for quality HDTV material.
- There should be a transmission requirement established for overall HDTV broadcasting and 55 per cent of this should be occupied by Australian programs.
- In the event that requirements are also established for HDTV originated material, this should include a minimum Australian requirement.
- While it may not be appropriate to place specific requirements on particular types of programming at this early stage, the mix of Australian and foreign material in particular genres should be monitored.

It would also be reasonable to also establish some prime time requirements for HDTV material.

Under the current regulations, there is a risk that the commercial networks will enter into 'regulatory gaming' by meeting their HDTV obligations with material broadcast only outside prime time. This would have a secondary effect because of the current Australian content requirements for television commercials during prime time. Advertisers would be unlikely to use either standard aspect ratio commercials or standard-definition commercials as interstitial material in high-definition programs. This risk and the consequent effect on the Australian TV production industry could be addressed by ensuring that the regulatory toolbox includes the ability to mandate HDTV in prime time.

Interactive television

See also: *Digital television: free-to-air multi-channelling*; *Digital television: subscription*; *t-commerce*; *2.5G and 3G cellular mobile phone services*

Definition: Interactive television (ITV) is basic TV enhanced by interactive content.⁹³ ITV offers a richer entertainment experience including interaction and additional information pertaining to a program's creation. It can also include links to websites, electronic communication with others and online commerce through a back channel (T-commerce). There are three main ways of interacting with television programming: mobile phones (and, to a lesser extent, personal digital assistants or PDAs), set-top box-based systems and two-screen TV, where the television is screened in synchronicity with the Internet.

Consequences for current content delivery: Producers are expected to progressively 'bundle' the TV program and the interactive application into the one 'rights' package. Such a scenario will mean that Australian-based ITV content developers will be excluded from producing the interactive components of imported programs. However, equity considerations would suggest that the same local content quotas that apply to free-to-air television and pay TV should also apply to ITV.

Independent applications such as online banking and home shopping tend to be produced for banks, retailers and the like. Given that these are essentially sales and advertising channels, existing advertising content quotas should apply.

Current and future status

International: The UK is the acknowledged world leader in ITV. More than 50 per cent of the UK adult population makes use of some kind of interactive technology (Internet, digital TV or WAP mobile phone).⁹⁴ By mid-2003, 84 channels were available in the UK offering dedicated stand-alone interactive services (such as games, betting or t-commerce) or enhanced television applications running alongside broadcast content, allowing games, SMS services, voting or multi-screen viewing.⁹⁵ This compares to 71 channels in France, 37 in Spain, 27 in Italy and 11 in Germany.

Australia: Due to the lack of suitable access infrastructure, ITV in Australia lags behind many countries such as the US and the UK. Hence, the ITV content development industry in Australia also lags behind these other markets in opportunity.

Foxtel has recently stated that it proposes to roll-out an ITV service, once Telstra has digitised its HFC cable network. Foxtel is proposing that ITV be a major source of future income.

Roll-out of digital terrestrial television by the free-to-air networks has also begun. Current penetration rates of digital terrestrial television are less than two per cent, although this is expected to lift as free-to-air broadcasters offer new services such as ITV and HDTV.

Current Australian regulation

There are no regulations specifically covering interactive TV at present.

Overseas scenarios

Canada: The Canadian Radio-television and Telecommunications Commission (CRTC) is undertaking a review of ITV services to define the parameters of regulation of such services (see box, page 9).⁹⁶

The CRTC agreed with views of several parties that the concept of a 'program-related' activity should be one of the key factors in determining which ITV services, if any, fall under the definition of broadcasting, and what regulatory treatment they should be subject to as a result.

European Union: The EU currently does not impose content rules on information society services. However, the Grünwald report on possible options for review of the ECTT⁹⁷ posits three approaches (see box page 10).

- keep the existing framework, apply content regulation to conventional TV services only and leave multimedia content unregulated;
- create program services of a second order with the ECTT (subcategory) and apply existing regulation only in part to newly included services; and
- leave the ECTT as it is and adopt a Multimedia Convention, which would include content regulation for specific media.

It is not yet clear whether interactive television would fall under the definition of broadcast television services or the proposed broadened definition covering all services under the third option. It is possible that it may be included in a list of new media services under the second option, thus negating any extension of content regulation based on origin of program.

If interactive services were included under broadcast television services, it would allow for the extension of the origin of programming regulations, under the model suggested.

The Council of Europe has yet to comment on this report.

Hong Kong: The *Digital Terrestrial Broadcasting in Hong Kong* consultation paper (see box, page 11) recommends that digital television program services remain subject to the Broadcasting Ordinance. While the paper does not directly address services providing interactivity related to their programs, it is assumed that such activity would be subject to the Ordinance since interactive services not linked to programs are recommended to be subject to the telecommunications regulations. No decision has yet been made on these recommendations.

Singapore: As a part of its Media 21 policy (see box page 11), the Media Development Authority (MDA) has established a Digital Broadcasting Development Fund⁹⁸ to support the development of original, innovative and high-quality digital broadcasting content and services for digital TV. This includes projects related to development of info-educational programs which promote online learning, eg with links to educational websites; and development of new innovative interactive applications for DTV eg user-friendly electronic program guides (EPGs), data broadcasting services and conditional access.

South Africa: South Africa is undergoing a review of digital broadcasting (see box page 11).

UK: The Independent Television Commission (ITC)⁹⁹ introduced regulation of ITV in 2001. The new rules reaffirm the distinction between advertising and program content. The intention is that they will protect children from intrusive advertising. Television programs, especially news, current affairs, consumer advice and children's programs, must be free from commercial interference, preventing the interactive element from blurring the division between programming and advertising.¹⁰⁰

US: The FCC¹⁰¹ in the US currently makes determinations as to what constitutes program-related information in the analogue context. The FCC has sought further public comment on the definition of 'program-related' in the digital broadcasting context, for the purposes of determining what distributors 'must carry' in the digital broadcasting environment.¹⁰²

Potential Australian regulation

Options could include:

- transmission quotas (broadcast streams) and expenditure quotas – the same local content and advertising quotas that apply to free-to-air television and pay TV;
- government funding and/or production fund levies to support the development of digital or interactive content.

See *Summary of regulatory options*, page 5.

Interactive television: electronic program guides

See also: *Digital television: free-to-air multi-channelling*; *Digital television: subscription*; *t-commerce*; *Video-on-demand and pay-per-view*

Definition: An electronic program guide (EPG) is an onscreen guide that makes it easier for viewers to choose and/or access content from among the large number of channels, pay-per-view (PPV) events and so on available on multi-channel TV platforms. An EPG can often also allow consumers to pay for events such as video-on-demand (VOD). More advanced EPGs offer Internet interactivity for browsing, chatting, email and so on. EPGs can also keep track of favourite channels, offer a 'reminder' about favourite programs, restrict access to channels unsuitable for children, and offer a television search engine of a sort that can search for types of programs or themes in programs. A 'barker channel' is similar to an EPG but is simply used to list or promote programs on other channels. Also known as 'interactive program guides' (IPGs).

Consequences for current content delivery: EPGs act as 'gatekeepers', directing viewers to particular content. The way they are designed and how they present information will clearly influence what content the viewer finally selects. Therefore, measures on fair and non-discriminatory EPGs may prove necessary to guarantee pluralism and availability of diverse content.

Current and future status

International: Available extensively throughout Europe and North America.

Australia: Currently available on digital channels for SBS and ABC as well as the pay TV services.

Current Australian regulation

Conditions are placed on electronic program guides under the datacasting regime. These state that if an EPG is used and contains information about one commercial or national television broadcasting service, the licensee must transmit the equivalent information about each other commercial or national television service.¹⁰³

Each national broadcaster must also provide program guide information to each other under the Digital Television provisions of the *Broadcasting Services Act 1992*.¹⁰⁴

Overseas scenarios

European Union: Like ITV and broadband sites generally, it is unclear whether EPGs would fall under the ECTT regulations after the current review (see box, page 10). The Council of Europe has yet to decide on a new framework for the ECTT taking into account the digital transformation, and has yet to comment on the report on possible options.

It has also been recommended that the CoE continue to monitor EPGs as a basic tool which viewers will have to rely on to navigate through the multitude of channels in digital television.

The EU has made attempts to promote inter-operability of set-top boxes to avoid 'gatekeeping' by the set-top box provider.

Canada: In its review of interactive television services, the Canadian Radio-television and Telecommunications Commission (CRTC) considered that an interactive program guide (IPG) is a type of virtual channel and would also fit into the non-traditional stand-alone services category. When deciding whether an IPG is broadcasting and therefore subject to local content regulation, the CRTC posits two tests (see box page 9).

The IPG was also deemed an area of concern for the CRTC. It argued that the interactive enhancements to advertising or program listings that are part of the IPG could be used to give an undue preference to certain programming or non-traditional stand-alone services.

Singapore: As a part of its Media 21 policy (see box, page 11), the Media Development Authority (MDA) is seeking to support innovative interactive applications for DTV such as user-friendly electronic program guides.

New Zealand: New Zealand's *New Technologies and the Digital Future* report (see box, page 11) recommended that the free-to-air channels be carried on all cable and satellite platforms and be given prominence on the EPG.

South Africa: South Africa is currently undergoing a review of digital broadcasting (see box page 11).

Hong Kong: The *Digital Terrestrial Broadcasting in Hong Kong* consultation paper (see box, page 11) recommends that EPG services should be regulated under the competition provisions in the Broadcasting Ordinance (Cap. 562), due to similar concerns found in the EU and Canada.

Potential Australian regulation

Positioning and promotion of Australian content: prioritisation of Australian content could be enhanced by enforcing prominence on the EPG. There could also be obligations to ensure that Australian content was prominently advertised on the platform and elsewhere, at least as prominently as other forms of premium content.

See *Summary of regulatory options*, page 5.

Interactive television: personal video recorders

See also: *Digital television: subscription; Interactive television; Video-on-demand and pay-per-view*

Definition: A personal video recorder (PVR) or digital video recorder (DVR) records audiovisual material onto a computer-like hard disk rather than tape. This can change the way a live broadcast is viewed. A viewer may 'pause' the live broadcast on-screen while the PVR continues to record the program as it continues. When the viewer hits 'play' again, the PVR displays the program from the point at which the live program was paused.¹⁰⁵ However, the PVR does not allow permanent storage as the recording isn't yet on a removable medium like a tape or disk.

Consequences for current content delivery: VCRs will become obsolete, especially when PVR capabilities are combined with a means of permanent storage such as a DVD recorder.

PVRs may have a profound effect on the way viewers watch television over the next 10 years, as they will allow viewers to record a massive amount of broadcast material and replay it with great flexibility (eg skip over advertising, etc. with unprecedented convenience).

A US study showed that PVR increases the demand for TV services in general. NextResearch found that 69 per cent of PVR users say they always or often fast-forward through commercials; 44 per cent of all PVR owners have more premium channels than before; and 43 per cent have more total channels than they did before.¹⁰⁶

'PVRs act as distributed video on demand delivering any program, any time without the massive infrastructure using relatively invisible technology,' says Jennifer Choate, CEO and President of NextResearch, Inc. 'PVRs hold the potential for what consumers may well want – *proactive TV*.'

Current and future status

International: Media analyst *Screen Digest* predicts personal video recorders won't become a mass-market phenomenon for at least another four years. It expects just five million European homes to have a PVR system by 2006. The figure represents around three per cent of all households with a TV and compares to an anticipated penetration rate of 14 per cent in the US.¹⁰⁷

However, in the long term, *Screen Digest* predicts that once combined with a DVD recorder, PVR capabilities will become a common feature of the home entertainment set-up.¹⁰⁸

In the US, research firm The Yankee Group reported that it expects there to be 20 million DVRs installed in the US by the end of 2005, up from 5.6 million at the end of 2003. Another research group, The Carmel Group expects the DVR market to grow to 28.6 million, or 25.7 per cent of all US households, by 2008.¹⁰⁹ TiVo, the leading DVR in the US, announced in November 2003 that it had reached one million subscribers, and that, despite difficulties, it had achieved US\$103 million in net revenues for the 12 months ending July 31 2003.¹¹⁰ TiVo is also available paired with DVD players from Toshiba and Pioneer as well as the satellite subscription service DirecTV's tuner.

Australia: Foxtel is planning to launch a PVR in 2005.

Current Australian regulation

There are no regulations at present.

Overseas scenarios

Canada: Under Canada's review of ITV services (see box page 9), the CRTC has not clearly stated whether PVRs fall within the bounds of the categories of ITV that are deemed to be subject to regulation. Conceivably PVRs could fall under the second category (non-traditional stand-alone services) enabling them to be regulated.

United States: The issue of ad-skipping and sending recorded shows to friends via ReplayTV (produced by SONICBlue) has been raised by content producers such as Paramount, Disney, NBC, CBS and Showtime, who sued SONICBlue for copyright infringement.¹¹¹ An article by University of Chicago Law Professor Randall Picker¹¹² explores the commercial and legal difficulties raised by DVRs, and the possible need to regulate DVRs with a mix of copyright, statutory compulsory licences, 'must carry' obligations and retransmission consent rules – similar to that emerging from other TV intermediation devices such as cable and VCRs. Picker believes that:

The dispute over 'must carry' will morph into a fight over 'must store' or 'must be smart' as over-the-air broadcasters will seek access to the storage and intelligence that will come to reside in the set-top box.¹¹³

Potential Australian regulation

PVRs are essentially personal storage and editing devices. While it is hard to see how government can influence the type and nature of content users select to view, or not view, it is not impossible.

One form of regulation, for example, which would still maintain the PVR's commercial viability, might be to remove advertising from Australian programs recorded on a PVR to make them more attractive to consumers while continuing to include advertising in foreign content. Alternatively, advertising may be maintained for Australian programs, making them more commercially attractive to advertisers and therefore commercial networks. 'Must-store' or 'must-be-smart' options as suggested by Picker may be useful in this regard.

Flexibility is required to ensure that PVR services are regulated in a way that is consistent with the current regulation of analogue services.

Internet via TV, and walled gardens

See also: *Interactive television*

Definition: In its most basic form, Internet TV simply uses the television set as a 'display monitor' for surfing the Internet. However, a TV set provides a poorer quality picture than a personal computer monitor (eg text is very difficult to read), and Internet TV users generally use the Internet for fairly un-intensive 'web surfing' purposes.

Various forms of Internet TV product have spawned which address these limitations. For example, a 'walled garden' service restricts the users to a specified set of web pages – usually selected because they suit the commercial purposes of the Internet TV provider (eg they carry related-party advertising, e-commerce etc.) and because they have been designed to suit the television display medium (eg they are not text-dense and contain very simple navigation requirements). Two-screen TV has also been developed. Here, the television is screened in synchronicity with the Internet, allowing for a TV show's web page to be brought up at the same time the program is screened.

Current and future status

International: A number of providers, particularly in the US, offer an Internet service via the TV, including Microsoft.

Australia: No major providers.

Overseas scenarios

Canada: In its review of interactive television services (see page 9) the Canadian Radio-television and Telecommunications Commission (CRTC) identified three broad categories for interactive services in which particular technologies may be classified, one of which was Internet-over-TV services.

Certain program-related content would be deemed to be regulatable under the Broadcasting Act. The primary concern for the CRTC with this category of ITV services is to differentiate Internet content from Internet-like content. Those who made submissions to the CRTC on this issue considered that ITV portals or walled gardens differ from the Internet in general. While portal content appears to be, in many respects, identical in appearance to a website, the portal content is only accessible through a particular service provider and not through the Internet at large.

Each service would be individually assessed against two tests in order for it to be deemed 'broadcasting' and thus regulatable (see box page 9). Since a TV set is the display vehicle, one would assume that the content providers will shape their content with this in mind and would not use predominantly alphanumeric text and therefore would be broadcasting. To date, however, most Internet-over-TV services have been used to provide a simplified version of the content already available over the Internet.

Current Australian regulation

Internet carriage services are permitted under the datacasting regime. These services are not subject to genre conditions (see *Datacasting: Current regulation*).¹¹⁴ However, an anti-avoidance mechanism is in place to stop datacasters from circumventing the genre conditions by screening the genre via their Internet service.¹¹⁵ The ABA has the power to exempt content copied from the Internet by the licensee for any minor breach that is infrequent or incidental.¹¹⁶

The online provider rule (or Internet censorship regulation) under Schedule 5 of the *Broadcasting Services Act 1992* applies to Internet carriage services via datacasting.¹¹⁷ This scheme is briefly described under *Narrowband Internet content*.

Potential Australian regulation

Options could include:

- extension of existing Australian content standards: any 'walled garden' appearing on television, is by its very nature restricting the content available to Australian viewers; given that this privileged position is not too dissimilar to free-to-air broadcasters, the same type of Australian content quota system could apply to 'walled gardens' versions of the Internet, made available through the television medium;
- 'must carry' and Australian content access regimes;
- positioning and promotion of Australian content.

See *Summary of regulatory options*, page 5.

Narrowband Internet content

See also: *Internet via TV and 'walled gardens'; Interactive television*

Definition: 'Narrowband' Internet content refers to content on the World Wide Web and Internet services provided at dial-up speeds – 56k or less.

Current and future status

Australia: The Internet is fast becoming a medium of choice for Australians to derive much of their news, information, education and entertainment. By November 2000, 50 per cent of Australia's adult population had accessed the Internet,¹¹⁸ and in March 2002 there were 4.23 million Internet subscribers in Australia, 94 per cent using dial-up access.¹¹⁹ According to Nielsen NetRatings, the average web usage per user for Australia was 24 sessions per month compared to 23 in the UK, 30 in US homes and 63 in US workplaces. Australians spend on average 13 hours and 41 minutes on the web per month compared to 11 hours and 27 minutes in the UK, 25 hours and 25 minutes in US homes, and 74 hours and 26 minutes in US workplaces.¹²⁰

Despite the plethora of available content, the majority of Australian Internet users tend to visit common sites. However, many of these websites contain primarily US-based content.

Roy Morgan latest Internet top 10 (including portals), Australia, May 2003

	Site	Share (%)*
1	ninemsn	35.5
2	Google	28.5
3	Yahoo!	27.2
4	Hotmail	24.5
5	Telstra.com	17.0
6	Yahoo! Search	14.6
7	f2 (Fairfax)	13.6
8	News Interactive	13.5
9	White Pages Online	11.9
10	MSN Messenger	11.8

* % of all Australians (aged 14+) visiting the site or portal in the four weeks prior to the survey, May 2003

Current Australian regulation

Content production schemes are available through government agencies such as Australia Council,¹²¹ National Office for the Information Economy (NOIE).¹²²

Online content is regulated by Commonwealth legislation for the purposes of controlling prohibited content. The Commonwealth regime introduced in 1999 under Schedule 5 of the *Broadcasting Services Act 1992* establishes a framework for regulating Internet service providers (ISPs) and Internet content hosts (ICHs). The Act institutes a co-regulatory scheme under which the Australian Broadcasting Authority (ABA) and the Internet industry share responsibility for the regulation of content. Industry codes of practice have been developed, which the ABA can supplement using its reserve powers. However, most activity by the ABA under the scheme is complaints-driven. Victoria, the Northern Territory and Western Australia have also enacted legislation regulating 'proscribed' material online.¹²³

Potential Australian regulation

- Content quotas: regulations that support a minimum amount of Australian content on, say, the most popular 20 websites hosted in Australia, would help ensure that the content visited by Australians has a selection of Australian product.
- 'Must carry' and Australian content access regimes: similar to broadband websites, Australian content access regimes could require ISPs to grant access to the creators of Australian content.
- Positioning and promotion of Australian content.

See *Summary of regulatory options*, page 5.

Peer-to-peer (P2P) networks

See also: *Broadband websites; Interactive television: personal video recorders*

Definition: Peer-to-peer (P2P) networks are essentially sophisticated private communications networks capable of distributing audiovisual material or computer programs via telecommunications networks. Material is stored on individual computers in a shared file and accessed by other users on the network.

Consequences for current content delivery: There are enormous consequences for the copyright industries including:

- decrease in sales and subsequent cost-cutting of CD and DVD prices: Universal Music Group cut the prices of its CDs by up to a third in September 2003 in response to falling sales arising from the large-scale copyright infringement occurring through CD burning and file-swapping.¹²⁴ The dollar value of the Australian audio market (excluding music video and DVD) in 2002 was down by 8.9 per cent (from \$629 million to \$573 million);¹²⁵
- distribution channels opened up for copyright-free and legitimate paid-for material;
- intellectual property piracy.

Current and future status

P2P file-sharing programs include KaZaA,¹²⁶ Gnutella,¹²⁷ Limewire,¹²⁸ WinMX,¹²⁹ many offering legitimate material through channels with licensed content. Napster, the most widely known file-sharing service, was sued by the Record Industry Association of America (RIAA) in 1999 for copyright infringement. After court battles and financing from BMG, software company Roxio bought Napster's technology and name and have relaunched Napster 2.0 as a legitimate subscription-based service.¹³⁰ According to IDATE, P2P networks accounted for 60 billion downloaded files in 2003 including 45 billion images, 12 billion audio files and 87 million films.¹³¹ The US is the world's largest file sharer, followed by Japan and Europe. Jupiter Research reports that 13 per cent of adults who use the Internet also use Napster-style P2P file-sharing networks such as KaZaA.¹³² Furthermore, file-sharing in Europe is growing, with over 75 per cent of broadband subscribers using P2P networks at least once a month.¹³³

The British Broadcasting Corporation (BBC) has announced it will make its back catalogue archives available for P2P file-sharing over the Internet.¹³⁴ Programs will be available via an Internet media player that will enable transparent, legitimate P2P file-sharing.

KaZaA, owned by Australian-based Sharman Networks Limited, announced in May 2003 that it had become the most downloaded software in the world, overtaking the previous record-holder, instant message software ICQ, by reaching 230,309,616 downloads. Licensed files, including music, movies, games and software, are made available over KaZaA, which claims that upwards of 20 million licences are acquired by KaZaA Media Desktop users per month.¹³⁵

Apple's iTunes – a music player – has been the success story of the legal music download business in the US and UK. iTunes provides a shop where iTunes users can purchase singles for US\$0.99. iTunes v.4 also provided a file-swapping feature, but this has since been limited to streaming of playlists. According to Jupiter Research, the online music sector will grow from less than US\$1 billion in 2003 to US\$3.3 billion in 2008, when the Internet will account for 26 per cent of US music spending.¹³⁶

'Legitimate' file-sharing networks such as Scour from Miramax Hollywood Records, which licensed movies and short films, have been closed down by record and film corporation lawsuits. However, a number of subscription-based streaming and download software services are still in existence, including RealNetworks Rhapsody Digital Music Service,¹³⁷ and MusicNet with access to the catalogues of Warner Music Group, BMG Entertainment, EMI Recorded Music, Sony Music Entertainment, and the Universal Music Group.¹³⁸

A study by Jupiter Media Matrix reported that Internet users who download music from unauthorised P2P services are more likely to increase their music purchases. 34 per cent said that

they spent more money on music than before they started using P2P services, while 15 per cent said they spent less. The remaining 50 per cent said their purchasing habits did not change.¹³⁹

However, the market research company The NDP Group found that the number of households acquiring music files began to decrease in May of 2003, immediately after the Recording Industry Association of America (RIAA) instituted a well-publicised campaign threatening individual file sharers with legal action. NPD's projection of the number of households acquiring music files reached a high of 14.5 million in April of 2003, but in May that number fell to 12.7 million households and declined again in June to 10.4 million households.¹⁴⁰

Current Australian regulation

Copyright regulations. No content regulations.

Overseas scenarios

Copyright regulations. No content regulations.

Potential Australian regulation

The following suggestions depend on P2P file-sharing programs becoming legitimate at some point in the future, be they in the form of the iTunes model, a 'legimitised' KaZaA model or other yet-to-be-decided models. Regulatory options might include:

- distribution: subsidising distribution linkages similar to that of the AFC and the ABC, except a P2P network would be the access point for content downloads;
- positioning and promotion of Australian content: file-sharing programs such as KaZaA already highlight particular content, including copyright-free and licensed material, by placing them above other files searched. Australian content could be highlighted in a similar fashion;
- 'must carry' and Australian content access regimes.
- Furthermore, there needs to be sufficient flexibility to allow regulatory change to deal with the potential for increased intellectual property piracy associated with the use of P2P networks.

See *Summary of regulatory options*, page 5.

Satellite delivery

See also: *Datacasting; Digital television: subscription; Digital television: free-to-air multi-channelling; Interactive television: personal video recorders*

Definition: The distribution of analogue or digital audiovisual content by satellite. Also known as 'direct broadcast satellite' (DBS)

Current and future status

International: The global digital satellite market grew by 13.3 per cent between 2001 and 2002 according to *Screen Digest*.¹⁴¹ Asia was the fastest-growing region, with 33 per cent growth in subscribers in 2002; subscribers grew by 14.9 per cent in Western Europe.

The US direct broadcast satellite market was created in the 1980s. Its total subscriber base passed one million households in 1995, and according to *Screen Digest*,¹⁴² by the end of 2002 over 19 million US households were satellite subscribers. It is expected to capture 27 per cent of TV households by 2008. In Canada, satellite delivery accounted for 18 per cent of TV households in 2002.

Like cable and other platforms, DBS is expecting new interactive services such as PVR and Internet access to contribute to growth. Indeed, DirecTV, the largest supplier of DBS, has recently announced the production of a DirecTV receiver with a TiVo (personal video recorder) service built in.¹⁴³ Murdoch's Fox Entertainment group has recently bought a controlling share of DirecTV.¹⁴⁴

In the UK, a broadband Internet-via-satellite service is set to be introduced in January 2004.¹⁴⁵ The News Ltd-owned British Sky Broadcasting (BSkyB) reached 7 million subscribers in the UK in September 2003.¹⁴⁶

Australia: Current Australian satellite services include Austar and Optus Aurora.

Overseas scenarios

Canada: Under the Broadcasting Distribution Regulations, all licensees of cable services, direct-to-home (DTH) satellite distribution undertakings, and multi-point distribution systems (MDS) must ensure that a majority of video and audio channels received by subscribers are Canadian programming services.

Expenditure requirements also apply, with distribution service providers required to make financial contributions to an independent production fund which will support the production of new, quality Canadian programming. Typically the contribution is expected to be a minimum of five per cent of annual gross revenues, of which a minimum 80 per cent must be directed to the Canadian Television Fund and the remainder directed to one or more independently administered funds.

US: The US Government introduced in 1999 a requirement that DBS must carry all local commercial television stations in the same geographic market if it chooses to transmit one local television station.

New Zealand: New Zealand's 2001 *New Technologies and the Digital Future* report (see box page 11) recommended that the free-to-air channels be carried on all cable and satellite platforms and be given prominence on the EPG.

European Union: 'Must carry' rules are extensive.¹⁴⁷

Potential Australian regulation

Satellite delivery does not differentiate the service from other delivery mechanisms in terms of regulation in Australia. Any proposed alteration of regulations applying to a service delivered via satellite, be it pay, public or commercial broadcasting, would therefore apply to these services delivered by satellite. 'Must carry' rules and increased expenditure requirements are two regulations that are likely to be imposed.

t-commerce, m-commerce and advertising

See also: *Interactive television; Internet via TV and 'walled gardens; 2.5G and 3G cellular mobile phone services*

Definition:

t-commerce refers to television-based commerce: systems that allow people to conduct business securely through Internet-enabled television.¹⁴⁸

m-commerce refers to mobile commerce: systems that allow people to conduct transactions anywhere, anytime; it typically refers to use of mobile phones and other portable devices to conduct a variety of transactions.¹⁴⁹

Areas of present and future interest for content regulation are:

- interactive advertising via digital television or broadband;
- television commercials;
- advertising of films.

Consequences for current content delivery include:

- global delivery of marketing campaigns
- initial increase in costs of advertising production
- further blurring of the lines between content and advertising.

Interactive TV advertising will allow advertisers to more closely observe consumer behaviour by tracking remote control clicks, discovering personal preferences and creating personal profiles of users in order to push products, services, and advertising related to their profile.

Current interactive advertising in the UK, US and Canada allows consumers to respond to commercials by clicking a button on screen or on a digital remote control. In doing this they may register a request for information, such as receiving a brochure, sample or information, or purchase goods or a service. Another form interactive advertising has taken has involved selling the products and goods seen on television programs where for example a viewer can click to buy a character's clothing.

Current and future status

International: t-commerce and interactive advertising has found its biggest success in the UK. Interactive advertising has been available through digital television for a number of years and an industry is building in both the US and UK.

Australia: According to the Australian Communications Authority¹⁵⁰ mobile phone penetration in Australia is in excess of 13 million services or 67 per cent of the population – suggesting that Australia is well-positioned for m-commerce services to develop. Australian m-commerce services offerings currently range from services such as ringtones, games, information services (including news and weather information and map services) sending/receiving photos or emails, mobile banking to car parking payments, vending machine purchases, mobile eftpos and video/music downloads.

m-commerce take-up in Australia is limited at this stage for a number of reasons:

- consumer unfamiliarity with m-commerce applications;
- the slow pace of international standardisation;
- the need for industry interconnectivity agreements; and
- little sign of substantive partnerships between mobile network operators and the financial services industry.

t-commerce has yet to make an impact in Australia but is expected to grow with the introduction of digital interactivity in subscription and free-to-air television.

Overseas scenarios

France: Films are not allowed to be advertised on television under broadcasting regulations aimed at preventing powerful distributors from dominating the market. However, in a recent decision brought down in February 2000, the French audiovisual authority CSA decided to temporarily lift the ban on the advertising of cinema-related websites on television. This measure was set for an 18-month trial run.

Malaysia: All commercials must be made in Malaysia with directors, artists and technical/production crew sourced locally. At least 60 per cent of the scenes must be shot locally. Commercials must also obtain 'Made in Malaysia' approval from the Ministry of Information and approval from the censor board.¹⁵¹

Hong Kong: The *Digital Terrestrial Broadcasting in Hong Kong* consultation paper (see box page 11) also recommends that additional service licences (additional services include home shopping over the digital terrestrial television multiplexes) should be licensed as Public Non-Exclusive Telecommunications Services under the Telecommunications Ordinance (Cap. 106) and subject to those provisions. These services should also be limited to 25 per cent of the capacity of the multiplexes.

UK: The Independent Television Commission (ITC) introduced regulation of ITV in 2001, and the new rules reaffirm the distinction between advertising and program content (see *Interactive television*).

The UK Film Council currently has a Print and Advertising Fund for feature-length films exhibited in the 35mm or digital formats.

Current Australian regulation

The current standard for Australian content in advertising requires at least 80 per cent of advertising time broadcast each year by commercial television licensees, between the hours of 6am and midnight, be used for Australian produced advertisements.

The ACA has produced a discussion paper on mobile commerce,¹⁵² but this did not raise any content regulatory issues except those related to consumer and complaint handling of adult material via m-commerce.

Potential Australian regulation

Current regulations covering local content of advertising should be maintained or increased:

- Current regulations could be extended to digital, interactive forms of advertising.
- Regulations similar to France could be imposed.
- Regulations covering subscription TV and other new services should be imposed.
- Transmission quotas (broadcast streams): Interactive advertising and online transactions utilising streaming video will become increasingly popular; a scheme similar to the current advertising quota could be introduced, at least in relation to walled garden services.

See *Summary of regulatory options*, page 5.

2.5G and 3G cellular mobile services

See also: *Broadband websites; Datacasting; Interactive television; t-commerce, m-commerce*

Definition: 2.5 and 3rd generation (2.5G and 3G) cellular mobile services are the next generation of phone networks recently introduced into the market in Australia and many overseas countries. Compared to 2G phones, which mainly provide telephony and basic text services, 2.5G and 3G phones will have a considerably greater bandwidth available for multimedia purposes. 2.5G and 3G users can send large files (which could contain video, text and audio) from phone to phone, surf the Internet, and receive streaming video and audio services (ie broadcast type services). In many ways, the capabilities of a 3G phone will approach that of broadband Internet access.

Consequences for current content delivery: Many predict that this next generation of multimedia-capable cellular service will provide a rich array of 'personalised' content to users. However, the very nature of the product (portable and personal) means that most of the 'high value' content applications are also likely to be very location-specific (eg local weather, local maps, nearest chemist, local news update etc.). Given this type of content will be the main focus, by its very nature the content should be largely locally produced.

Mobile phones are also increasingly being used as a 'back-channel' for interactive television. When consumers send a text message to promoters like TV stations it is usually billed to them at a higher price, and the broadcasters share in the revenue generated from the messages sent.

Current and future status

International: 3G phone networks are being progressively launched in most advanced economies. Like Australia, the market is still immature and 'killer applications' have yet to be found. Mobile phones have been used successfully as an interactive back channel in reality television series such *Big Brother*.

A 4G trial was held in Japan recently which enabled video of similar quality to high-definition television to be transmitted and received,¹⁵³ while a new prototype 3G phone incorporating a digital terrestrial tuner has been developed by NEC in Japan.¹⁵⁴

A standard has been developed for mobile digital television, with Finland trialling the DVB-H (digital video broadcasting: handhelds) mobile digital terrestrial television standard in 2005.¹⁵⁵ It is expected that subscribers will have access to eight channels.

Australian firm IPR Systems has developed the Open Digital Rights Language (ODRL) version 1.1. This has been adopted by Nokia, Samsung and Sony-Ericsson, operators including Vodafone, as well as by the open-standards-setting body the Open Mobile Alliance, as the standard to safeguard copyrighted content distributed over 3G networks.¹⁵⁶ ODRL allows content creators to determine how their material is used, including how many times it can be consumed, for how long it can be consumed before it expires, and how many times it can be forwarded, if at all.

Research group Datamonitor predicts the market for content over mobile phones will increase to US\$38 billion in three years.¹⁵⁷

Australia: Hutchinson Australia recently launched a 3G network covering the major capital cities. Optus, Telstra and Vodafone have launched 2.5G services and reserve the right (subject to demand) to roll-out 3G. Subscriber numbers for 3G are currently below 100,000. There is great conjecture as to whether 3G services will appeal to users. They are considerably more expensive than 2G services and it is still questionable whether the mobile phone will be used for advanced multimedia purposes.

Optus launched Australia's first mobile phone television service, known as Optus Zoo, in November 2003.¹⁵⁸ The service will re-transmit and stream ABC, SBS and CNN. Video downloads will also be available, including Channel 10 Sports Tonight, American Associated Press Television News (APTN) international news, Australian Associated Press (AAP) and Channel Seven finance news updates, and 1-2 minute update news bulletins from channels 7 and 10.¹⁵⁹

Mobile phones have been used as an interactive back channel in several Australian reality TV series including *Big Brother 3*, *Australian Idol* and *Fat Cow Motel*.

Spending on mobile phone ringtones is currently at \$20 million.¹⁶⁰

Current Australian regulation

No regulations (beyond censorship) cover Internet content on mobile cellular phones.

Potential Australian regulation

If 3G phones are to be used to receive streaming media (say a television service), then the Australian content on these services should be captured by similar regulations for radio, free-to-air TV or pay TV. Options might include:

- transmission quotas (on-demand services);
- expenditure quotas;
- positioning and promotion of Australian content;
- 'must carry' and Australian content access regimes.

See *Summary of regulatory options*, page 5.

Video-on-demand (VOD) and pay-per-view (PPV)

See also: *Broadband websites; Interactive television; Interactive television: personal video recorders*

Definition: Video-on-demand (VOD) and pay-per-view (PPV) enable television viewers to select a video program (often a movie as from the video rental store) and have it sent to them (in a form called a 'stream') over a channel via a network such as a cable, satellite TV network or DSL. The movie is stored in a set top box's or PVR's huge hard drive and the consumer would watch it from this source, eliminating the trip to the video store. The viewer can pause, rewind or fast forward, the movie (or whatever programming they're watching) as if it was running on their own VCR or DVD. This can also be known as 'interactive video-on-demand'.

Consequences for current content delivery: VOD and PPV services can be seen as an extension of a subscription television service, whereby viewers must pay for the right to view a program, but on a per-program basis, rather than on a per-channel package basis.

Various international analysts report that VOD and PPV are growing very quickly, often at the expense of traditional subscription services.

Another possible consequence may be loss of business for video/DVD hire stores.

Current and future status

International: As of mid-2003, approximately 40 per cent of all US cable TV systems were offering VOD, and almost 4 million cable TV subscribers were regularly using the service to watch movies, packaged premium programming, and even 'free' programs and events.¹⁶¹ VOD services are still a North American phenomenon.

Outside of the US and Canada, only a handful of cable operators offer VOD. There are a number of VOD services in Europe: Arcor in Germany, which has formed a coalition with Internet movie portals Cinema.de and Tomorrow.de; TV Cabo's Premier VOD in Portugal; Monaco Telecom; Softbank in Japan.

The European market for PPV reached €522.2 million in 2002 and is expected to reach €630 million by the end of 2003, growth of 21 per cent.¹⁶² The UK is the largest PPV market followed by France, Spain and Italy.

The existing market for home video 'playback' products and services, which consists of products like VCRs, DVD players and even PVRs, continues to pose a competitive challenge to the growth of cable-based VOD services. Worldwide subscribers to cable VOD services are projected to increase from about five million at the end of 2003, to almost 14 million in 2007.¹⁶³

Jupiter Communications claims that VOD will grow US Cable revenues from US\$293 million in 2003 to US\$1.4 billion in 2007, whilst the US market for subscription VOD services will increase from US\$56 million to US\$800 million over the same period.¹⁶⁴

By 2006, 80 per cent of the top 2000 businesses worldwide will deploy video-on-demand to employees' desktops, according to research from Gartner.¹⁶⁵

In speaking to the House Commerce, Justice, State, the Judiciary and Related Agencies Subcommittee of the House Appropriations Committee in 2002, Jack Valenti, President of the Motion Picture Association of America (MPAA) stated that the MPAA member companies are forging ahead with online video-on-demand in the absence of a proven market and low levels of broadband penetration for two reasons:

[The studios are] hopeful that these ventures will be met with the same excitement and consumer embrace that we have seen with the DVD, which has quickly become the fastest-growing consumer electronics platform in history.

Because as I have said before (and I pray we are right) that 99 per cent of the American public are not hackers. Given the choice between a legal alternative for watching movies and stealing, I

believe the vast majority will choose the legitimate alternative, but only if we do not allow lawlessness to become 'mainstream'.

Australia: Partly due to the current low penetration of broadband and pay TV services in the Australian market there has not been a major push by potential VOD providers to offer a national 'mass market' service. Notwithstanding, niche applications and services such as VOD services in hotels and motels are widespread.

It is expected that, as broadband and pay TV penetration rates increase, the economic attractiveness of a 'mass market' VOD service will improve.

Current Australian regulation

While there are currently no regulations specific to VOD, the near-VOD service Optus NVOD fell within the scope of the pay TV drama expenditure requirement regulations in 2001/02.

Overseas scenarios

Canada: Content on VOD is currently regulated in Canada: In July 1997 the CRTC issued licences to five applicants for national VOD programming undertakings.¹⁶⁶ Licensees are required to meet the cultural objectives of the *Broadcasting Act 1991*. Feature films represent the vast majority of program offerings, but the Commission indicated that licensees should test consumer demand for all types of programming in order to provide a diverse range of offerings to viewers.

VOD licensees, in common with pay and specialty channel licensees, are required to contribute a proportion of gross annual revenues (in this case a minimum of five per cent) to an independently administered Canadian program production fund.

The licensees are also subject to Canadian content regulations, with specified amounts of 'shelf space' needing to be provided on video servers and made available to subscribers. Bilingual services and English language services are required to maintain in their inventories a minimum Canadian to non-Canadian ratio of 1:20 for feature films, and 1:10 for all other programming types. French language services are required to maintain a minimum ratio of 1:12 for feature films.

In addition, licensees are required to ensure that not less than 25 per cent of the titles promoted each week on the licensee's barker channel (the entry point to the service which details program offerings) are Canadian titles, and that Canadian titles are given equal treatment to comparable foreign product on the menu-based navigation system. The 1997 requirements remain in force.

Hong Kong: The Hong Kong Broadcasting Authority currently regulates VOD services though licence conditions. Regulations specific to content are not currently imposed.

New Zealand: New Zealand's 2001 *New Technologies and the Digital Future* report recommended that the new developments in Canada were worth close study in developing local content regulation for NZ.

Singapore: The Media Development Authority (MDA) provides licences to VOD service providers but places only censorship regulations upon these licences.¹⁶⁷

Potential Australian regulation

Flexibility is required to ensure that VOD services are regulated in a way that is consistent with the current regulation of analogue services. The existing pay television operators delivering services in analogue over cable and digital over satellite are regulated with respect to general television services and near video-on-demand (NVOD) services. A mechanism to ensure a consistent regulatory regime in a digital VOD environment would be appropriate. Options include:

- transmission quota (on-demand services): Australian content rules similar to those for Canada could be imposed;
- expenditure quota: in its submission to the 2003 Review of Australian Content on Subscription Television,¹⁶⁸ the AFC argued that:

Near video-on-demand (NVOD) should be treated within the scope of an expenditure rule. In particular, NVOD channels should not be able to preclude themselves from the scheme by defining themselves as narrowcasters.

An NVOD channel provider can be expected to acquire feature film broadcast rights in a similar manner to standard movie channel providers, or they may acquire the rights on a cost-per-view basis. Using either model, at least 20 per cent of an NVOD movie channel's expenditure should be on new Australian content.

- positioning and promotion of Australian content;
- 'must carry' and Australian content access regimes.

See *Summary of regulatory options*, page 5.

Appendix 1: Regulatory options table

Measure	Characteristics	Applicability
Funding schemes		
Government funding	Schemes similar to existing funding provided by AFC and others.	Available to content creators; could be extended to creators of programs and applications.
Production fund levy	Levied against platform operators or service providers; various possible means of calculating obligation – could be 'pay or play.'	Could apply to any service for which revenue is generated. May have to create accounting rules for bundles of services; in some cases this may make it administratively not worth doing.
Content obligations		
Expenditure quota	<p>A percentage of the amount a platform operator or service creator pays to acquire content would need to be spent on new Australian content.</p> <p>Could also apply to content creators who pay to have their content shown.</p> <p>The money could be used by the party subject to the quota or it could be used for authorised activities, eg contributed to a fund or as a contribution to a co-production.</p>	<p>Applicable to any service which acquires content either directly or indirectly.</p> <p>A service which merely creates access to content will not be caught in this scheme.</p>
Transmission quotas (broadcast services)	Any broadcast or broadcast-like service could be made subject to a requirement that a percentage of material broadcast be Australian content. There could be sub requirements, relating to aspects of the service, eg the interactive television aspects of a digital television service.	Could apply to any service which has a continuous broadcast, chiefly any form of television service, this includes ITV, HDTV etc.
Transmission quota (on-demand services)	Platforms which permit access to audiovisual services on-demand could be required to ensure that a percentage of the material made available on those services is Australian.	Applicable to any on-demand service, eg broadband, VOD, 3rd generation mobile phone streaming video. Also applicable to traditional services such as video stores.
Content access regimes		
Must carry	Government mandates certain specific content must be available on a service.	Applicable to any closed or controlled network, such as a television broadcasting service.
Access regime for Australian content	Regulated access to networks for Australian content or a regime giving preference to Australian content.	As above.
Promotion and positioning		
Positioning of content	Regulation to ensure that Australian content or a percentage of Australian content is positioned within a service or on its navigational architecture in such a way as makes it easy to find.	Any service with significant amounts of content, where it would be possible for some content to be lost or overlooked. Includes positioning on EPGs or online navigation tools.

Measure	Characteristics	Applicability
	Could also require a certain amount of Australian content be available in basic tier or cheapest entry point for content.	
Promotion of content	Regulation to ensure that Australian content is promoted equally with other content both on a platform and more generally.	Any service which advertises its content, including by way of cross promotion.

Appendix 2: Acronyms and abbreviations

2.5G	two and a half generation
3G	third generation
4G	fourth generation
ABA	Australian Broadcasting Authority
ABC	Australian Broadcasting Corporation
ADSL	Asynchronous Digital-Subscriber Lines (a type of DSL where upload rates differ from download rates)
ACA	Australian Communications Authority
ACCC	Australian Competition and Consumer Commission
AFC	Australian Film Commission
AOL	America Online
APEC	Asia Pacific Economic Cooperation
APII	Asia Pacific Information Infrastructure
BSA	Broadcasting Services Act 1992 (Australia)
CD	compact disc
CD-Rs	recordable CD
CD-RWs	re-writable CD
CNC	Centre National de la Cinématographie (France)
CoE	Council of Europe
CPC	Canadian Private Copyright Collective
CRTC	Canadian Radio-television and Telecommunications Commission
CSA	Conseil Supérieur de L'Audiovisuel (France)
CTVA	Commercial Television Australia (formerly FACTS)
d-cinema	digital cinema: the high-end digital screening of films in cinemas
DBS	digital broadcast satellite
DCF	Digital Content Forum (UK)
DCI	Digital Cinema Initiatives (US)
DFAT	Department of Foreign Affairs and Trade (Australia)
DSL	Digital-Subscriber Lines
DTH	direct-to-home (satellite distribution)
DTI	Department of Trade and Industry (UK)
DVB-H	digital video broadcasting: handhelds
DVD	Digital Versatile Disc
DVD-R	recordable DVD
DVD-RAM	Random Access Memory DVD – for use on computers
DVD-RW or DVD+RW	re-writable DVD (developed by different companies)
DVR	digital video recorder
e-cinema	electronic cinema: all forms of audiovisual delivery via electronic means
EBU	European Broadcasting Union
ECTT	European Convention on Transfrontier Television
EPG	electronic program guide
EU	European Union
FACTS	Federation Australian Commercial Television Stations (now CTVA)
FCC	Federal Communications Commission (US)
FIBRE	Film Industry Broadband Resources Enterprise (Australia)

FTA	free trade agreement
GATT	General Agreement on Tariffs and Trade
HDTV	high-definition television
HFC	hybrid fibre coaxial cable
ICH	Internet content host
IPG	interactive program guide
ISP	Internet service provider
ITC	Independent Television Commission (UK)
ITV	interactive television
KBC	Korean Broadcasting Commission
KIPA	Korea Information Technology Industry Promotion Agency
m-commerce	mobile commerce
MDA	Media Development Authority (Singapore)
MDS	multi-point distribution systems
MP3	MPEG(Motion Pictures Expert Group)-1, Audio Layer 3
NVOD	near video-on-demand
NOIE	National Office for the Information Economy (Australia)
ODRL	Open Digital Rights Language
OFCOM	Office of Communications (UK)
P2P	peer-to-peer
PDA	personal digital assistant
PBL	Publishing and Broadcasting Ltd
PPV	pay per view
PVR	personal video recorder
RIAA	Record Industry Association of America
SBA	Singapore Broadcasting Authority
SBS	Special Broadcasting Service (Australia)
SDTV	standard-definition television
SFC	Singapore Film Commission
SMS	short messaging service
SPAA	Screen Producers Association of Australia
STB	set top box
t-commerce	television commerce
TV	television
USO	Universal Service Obligation
VCR	video cassette recorder
VHS	video home system
VOD	video-on-demand
WAP	Wireless Application Protocol

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