

exorbitant) amount to get into the market in license fees and capital expenditure to establish pay TV, on-line and even telephony businesses. On the other hand, to restrict the use of the spectrum (for example to HDTV) seems an inefficient use and contains all the risks of lost opportunity which the desirable principle of technology neutrality seeks to avoid.

---

## ALTERNATIVES

---

For these reasons, ASTRA proposed a model which would enable the current terrestrial broadcasters to be migrated to DTTB at no cost but limited to parallel

broadcast of their analog signal via "multiplexing".

This would leave a further three channels - that could carry eight or nine television programming streams or a mix of communications services - available for auction. The result - in addition to FTA migration to digital - would be extra revenue to the Government and the potential for innovation and new entrants in a range of communications services.

In addition, multiplexing would promote the move to digital by vastly reducing the FTA broadcasters' costs of shifting to

DTTB, especially in regional areas of Australia.

ASTRA is in for the long haul and looks forward to the continuing debate.

*Debra Richards is the Executive Director of the Australian Subscription Television and Radio Association.*

1. quoted from Colin Knowles' paper given at the AIC Cable & Satellite Conference, Feb '98.
2. *Time* 1 September 1997.
3. *Wall Street Journal* 12 September 1997.
4. *Australian Financial Review*, 10 February, 1998.

---

# DTTV: Services and Funding

---

**Malcolm Long, formerly Managing Director of the SBS, provides his views on the digital television debate, the overseas experience and the government broadcaster perspective**

---

---

## INTRODUCTION

---

The introduction of digital terrestrial television ('DTTV') in Australia thus far has been somewhat akin to a bear pit, characterised chiefly by the day-to-day tactical manoeuvring of the various parties who believe they will gain or lose in the marketplace.

But while this squabbling continues, we run the risk of failing to consider the full impact of the revolution DTTV will inevitably usher in. In the light of trends that are emerging for DTTV internationally, it's important to consider the actual on-screen services which are likely to emerge and how they might affect the businesses of the various industry players.

---

## FREE-TO-AIR TELEVISION

---

I start from the perspective of the free-to-air ('FTA') television operators. They are in a business which, after a period of overwhelming dominance, has entered an era of uncertainty and challenge.

The mass consumer audience which FTA television has so effectively sold to advertisers is fragmenting, a process which challenges the traditional structure and logic of these broadcasters' approach.

Globalisation of television threatens FTA operators' ownership of their local markets and introduces new and powerful competitors who build new audience segments which have international reach.

Deregulation in media and communications is breaking up the comfortable television oligarchies which dominated for so long and is introducing new skills and capabilities into a business which has operated in a remarkably narrow and unadventurous industry culture.

Convergence of all information and communications technologies into the digital domain is indeed breaking down FTA television's protective barriers but also, as I hope to show, offering some exciting possibilities.

---

## HIGH DEFINITION VERSUS MULTI-CHANNEL

---

In the United Kingdom, the system seems to be denying itself the opportunity of true HDTV and building a DTTV regime based mostly on its multi-channel capability with enhanced visual quality, cinema-shape picture and stereo sound as secondary features. Existing FTA's will have more channels and there will be new terrestrially delivered services. There are various reasons for this approach - spectrum availability, plus the Government's policy of providing more choice from existing broadcasters, and introducing new TV players. So confident is the BBC about DTTV that it predicts half of all British viewers will have digital reception capacity by 2005.

However, many industry figures in the US think the UK approach on HDTV is a mistake - specifically at CBS, which is

committed to a very aggressive pro-HDTV.

The network points out that one in five US households has a large-screen TV, so picture quality is definitely an attraction. CBS is working closely with TV set manufacturers who are talking up HDTV's potential. HDTVs were on show at last month's US Consumer Electronics Show and American manufacturers have predicted there will be one million large screen HDTV in the US by 2000 and that annual sales will reach seven million by 2006.

Other networks are less sure of where to put their programming emphasis, with NBC and ABC talking more about multi-channel opportunities. At the recent NATPE program market, 100 station operators were asked: Which holds more promise for digital TV - HDTV or multi-channel? The result was 37 per cent for HDTV, 52 per cent for multi-channel.

---

## A MIXTURE?

---

In reality, I believe that FTA stations will embrace a mix of HDTV, multi-channel and data techniques in their DTTV strategies using the ability to manage the bit rat of the digital seminar in Las Vegas in January that:

It is a misconception that ancillary data services and high definition video are mutually exclusive. Both can be accommodated simultaneously. The number of bits needed to transmit a

program of high definition constantly varies. Even with full high definition, there is a substantial number of unused bits that can be displayed to live sporting event - a pro football game, for example - there is sufficient opportunistic capacity to transmit the entire *Washington Post*, *New York Times* and *Los Angeles Times* within a matter of minutes. The excess capacity, while varying each instant, is many megabytes each time.

What will broadcasters do with all this capacity? Fortunes will be earned or lost in coming up with the answers to that questions. I believe that the digital bit stream will be in high demand, and that consumers will benefit from a whole new array of services designed to use this capacity. Another misconception is that broadcasters must elect to transmit in high definition or standard definition. This is not true, because the receiver will decode whatever the broadcaster is transmitting at any given time. So, after using the entire channel for a high definition telecast of a live pro-football game, a station could switch to sending simultaneously two high definition movies - which can withstand greater compression because they are not being transmitted live - or multiple standard definition channels of news, children's programming, and entertainment."

---

### POTENTIAL FOR MULTICHANNELLING

---

In Australia this dynamic model would have some obvious potential in the areas of movies and sporting broadcasts, but in other areas too. Drawing on my own programming experience at SBS, the broadcast of movies in high definition will be an obvious attraction, especially since so many movies are shot on 35mm which is great for HDTV. SBS's Worldwatch program - the daily string of news bulletins from around the world broadcast throughout the mornings - would be a classic candidate for multi-channel applications. Cycling those programs throughout the day and evening on a layer of the SBS service, at adequate picture quality, would be greatly appreciated by Greek, Italian and Japanese-speaking viewers who now have to get up early to watch them.

Sometimes SBS could use this splitting and layering capacity for special events: when two matches are being played simultaneously in the soccer World Cup; or when the same pictures of an event come with two separate soundtracks. This occurred with the Hong Kong

handover broadcast which came in English and a Chinese language. Which should we take. We broadcast in English, but with digital technology we could have easily split the audio commentary and left the choice to the viewer.

Audience enthusiasm and production costs will determine how the balance develops between high definition and multi-channel, as well as data transmission options. The balance may shift, for example, when flat screen technology offers high definition on the living room wall. But one thing is certain - whatever the constraints of regulatory pressure of policies, Australian broadcasters will be actively seeking to use the full capacities of the digital terrestrial television system.

---

### ADVERTISING

---

And they will be actively trying to make money out of it. This will require a radical change in the way TV advertising operates in Australia. The culture of the Australian industry to use TV for mass retail advertising. Simple *cost-per-thousand* rules the way the agencies do TV advertising. There is going to have to be a massive process of re-education to convince the agencies (and it is mostly the agencies, not the clients) that TV can be a powerful niche marketing medium too. Success in such a process will be necessary if the FTA broadcasters are to begin to cash in, especially on the multi-channel and data-related aspects of DTTV.

---

### DTTV AND PAY TV

---

But even this development will not pay for the kind of on-air presentations the networks will wish to explore. That is why it is certain that the current FTA broadcasters will, one way or another, at some point in time, go into pay TV off the back of their DTTV operations. It has happened already in Europe. In Britain, the BBC is currently previewing on cable three pay TV channels bound for DTTV. A deal with DSkyB is rumoured not to be far away. Channel 4, which is using its digital capacity for a movie channel called *The Film Club*, is about to supply another UK cable operator.

At some point, despite the current stand-off and political lobbying, there is going to be an historic coming together of the pay operators and the FTA broadcasters. I predict that eventually the pay operators, or "Content Co", or whoever ends up

handling supply arrangements for pay operators, will do deals with the FTA networks. The networks will supply additional channels on pay TV systems.

There are four reasons why this will happen.

The first is the politics of the set-top box. A set-top digital decoder will be the main entry point for digital signals into the home. Most people are only going to buy one set-top box. It will probably be the one provided by the big, free-to-air networks who have gone into digital terrestrial television.

I believe it will become clear to pay TV operators in the mid-term that, if they want to penetrate beyond the 20 per cent, 25 per cent or 30 per cent of households they have in their business plans, they are going to have to come to some agreement with the networks about a common technical architecture for the set-top box which delivers digital television.

Secondly, pay TV operators are going to realise that the marketing opportunity for their pay services represented by their being cheek-by-jowl with the FTA operators is going to be very considerable. What better way to market your 200 or 500 channels than to have a small bouquet of attractive material at a cheap price which is available to 99 per cent of Australian homes - which is where DTTV will be in a decade.

The third reason is that if the FTA networks go into subscription, they will need subscriber management and related customer service systems. Unless the networks do this by combining together, which is possible, these specialised resources would be provided through deals with those that already have them - the pay TV operators.

The fourth reason relates to the electronic program guide, which in the future is going to be central to the whole television viewing experience. As the number of TV sources coming into the home grows, the ability to find your way around these offerings will be crucial for the viewer. Navigating software will be required. Bill Gates would like it to be his software. Others are bent on preventing that. Whatever the outcome of that battle, an electronic program guide and organiser will be needed to help you find channels and programs, bring to your attention what is new, allow you to compose an evening's viewing, etc. The EPG is going to be very important for DTTV operators and pay TV operators alike.

Eventually these groups will recognise that it is in their interests to agree on a common EPG which will be fair to all service providers, apply agreed rules, and offer everyone a reasonable chance to convince viewers they should spend their precious time with your channel or program. This will be a case where limited cooperation will be in the interests of all.

So these are the kinds of developments, and there are others, which I believe will result eventually in the networks and pay TV operators talking, rather than fighting.

If any pay TV operator in Australia does not a strategic "plan B" for cooperating and coordinating with the FTA networks over DTTV in the future, they are making a mistake. Even though the debate is currently about temporary advantage, the issues I have raised have to be seriously considered and planned for.

---

## PRODUCTION CULTURE

---

For the FTA networks, the journey into DTTV will force an ongoing re-think of the philosophy of programming, which will be traumatic given the current stagnancy in that art. The capability to broadcast program-related data, the ability to deliver the Internet on the same set and maybe by the same path as the TV signal, the power of interactivity, the potential of multi-path drama where audiences choose program outcomes - all this will explode the old conventions of television production culture.

No one really what will emerge, but it will be a lot different to Donny and Marie doing talk shows.

---

## DIGITAL CONVERGENCE

---

The glittering prize for the FTA networks, as with pay TV operators, is, of course, to be at the centre of the action when the next phase of the digital revolution really takes off. The shape of this revolution is already emerging.

At the recent World Economic Forum in Davos, Switzerland, Sony President Nobuyuki Idei called for the creation of a worldwide technical standard embracing computing, television and mobile telephony. He appealed to leading companies from those industries to get together and create a "global open

architecture". Mr Idei argued that electronics today is divided into four different worlds: audio-visual services (which includes FTA), computers, telephony and cable. He pointed out that these worlds are becoming increasingly borderless and that a global architecture would end consumer confusion.

There was a hint of just how borderless Sony believes these worlds might become when, in the US last month, the company invested \$US187.5m in NextLevel Corporation. NextLevel is the supplier of new digital set-top boxes to nine of the biggest US cable operators. The two companies have been discussing the form their alliance will take into the future. The two companies have been discussing the form their alliance will take into the future. One option is for Sony to incorporate its Home Network hardware and software into the set-top box. This would make the box a computer hub for digital functions in the household, encompassing security systems and power management as well as television, personal computers, digital phone systems, stereos and other home appliances.

One of the great tests for FTA broadcasters in Australia in the next 10 years will be their ability, following the relatively easy ride of the past decade, to really grasp the opportunities that DTTV offers them in entering the digital domain.

If they recognise it, they will be well positioned to be significant players in the evolving business potential of the digital set-top box, including its transformation into the central entertainment and information manager in the home.

All of this is relevant to the specific policy debates regarding the introduction of DTTV into Australia.

It is lunacy to try and pick winners between HdTV and multi-channel DTTV. Australia has tried to micro-manage technology outcomes in broadcasting before, unsuccessfully. We tried it with the introduction of FM radio and got it wrong. An English engineer named McLean had to come in to clean up the mess. We had a moratorium on pay TV for a decade which pushed us into Third World status in terms of audio-visual services. We got it wrong in pay TV itself by attempting to mandate satellite technology. Surely we are not going to give broadcasters DTTV, then artificially restrict the bandwidth or the ways in which they can use it between HDTV, multi-channel and data?

---

## SPECTRUM ALLOCATION

---

As to the allocation of spectrum, the Government intends to allocate digital bandwidth to the FTA networks, who will be required in time to give up their analog spectrum. There is a good reason why FTA broadcasters are being lent spectrum in this way to make the transition to digital. And it is a reason that has not had much discussion. It is this: FTA broadcasters have traditionally provided communities with certain *public goods* that are considered important. Their services are universally available. They offer diversity in journalism and public debate. They buttress local culture and identity through local production which also develops the local production industry. In addition, the commercial networks provide the major advertising outlet for a vigorous consumer economy. FTA broadcasters do these things as part of deals whereby government restricts entry into the commercial FTA business, thus promoting their viability, and also directly funds the public FTA broadcasters.

---

## CONCLUSION

---

Governments in comparable countries have made the decision that the social goods provided by FTA networks need to be translated into the digital age. They have therefore decided to assist the networks by lending them spectrum for DTTV to ensure that these social goods make the transition. These governments recognise that they will never have the control over new media players that they have over the FTA networks. Equally in Australia, our FTA networks are highly regulated or have specific public charters, while our pay TV operators have very light-touch regulation, limited content rules, no geographical obligations and there are few barriers to entry.

Having said that, I believe the pay TV operators should have the opportunity to acquire some DTTV territory too, one way or another, and that TV subscription services, no matter who operates them, should be governed by a common regime.

In the short term there are severe spectrum constraints on new entrants into DTTV if the FTA networks are to be accommodated while continuing, for a period, with their analog services.

So what is the solution? One option is to require FTA networks to continue providing only FTA services in the DTTV domain. If they wish to deliver

subscription services directly to DTTV viewers before their analog spectrum is returned to government, they could be required to do so in association with an existing pay TV operator. In that way, they would be required to share the scarce DTTV resource if they went beyond the ambit of their free-to-air remit.

Such a measure would at least be consistent with what I believe will be, in fact, the long-term market-drive outcome for TV in the era of digitisation- the availability of most services on most digital platforms. This will benefit the viewer enormously and, in the end, it is the viewers' reaction which will

determine the winners and losers in the great digital television adventure.

*Malcolm Long is the former Managing Director of SBS and is currently Director of Communications Strategies and Management.*

## DVB or not DVB?

---

**John Collette, Head of Technology at the Australian Film, Television and Radio School, provides a technical reality check on the digital television debate**

---

In the rush of hyperbole surrounding the introduction of digital broadcasting, the issues raised centre on the technologies and not the real uses. From all sides, the lobby groups vie for a slice of spectrum while arguments are raised about a "future" that will fail to appear unless urgent decisions are made about the allocation of spectrum for this vital new development. At the same time, the nature of content is largely ignored, as if the medium were transparent enough to "invent itself" when it arrives, and an eager public are also waiting for the "next big thing" to buy....

What underlies the possibility of digital broadcasting is one of two options: the delivery of a high resolution picture, or the delivery of several smaller ones on the same bit of bandwidth. Beyond this, there is the hazy question of "interactive services" such as wireless internet transmission, and the spectre of "interactive" television (was that sighted once in a trial in Orlando never to be seen?).

---

### REALITY OF HDTV

---

Let's examine the options. The first is the "vital" move to HDTV broadcasting by the networks. This is said to be the future of the medium, and if the spectrum is allocated, there will be an interim program period, possibly utilising the multicasting model of sending several regular channels at once.

If allocated on this basis, will the glamorous world of HDTV broadcasting ever really arrive? The same argument was used in the United States and has suffered a reality check for the same reasons it will here. There are no facilities with HDTV production pathways - a station may deliver pre recorded content from a single player, but there is no studio infrastructure for the delivery of news, sitcom or other standard TV fare - the

cameras, switchers, vision mixers and associated equipment are simply not there. There is also a limited amount of programming available in HD formats. New machines for film transfer allow film to be mastered as HD material, yet is this enough? With the advent of the same MPEG-2 architecture in new generations of DVD players, will it be a competitor for a movie market which promises to make a quality home movie product at a unit cost of three dollars, high data integrity and resolution and small enough to be put into a spare shelf at the corner shop?

Wait also! Aren't we forgetting that nobody actually owns an HD TV? And although over 95% of people say they would like to watch HD broadcasts, less than 30% want to pay a premium for the price of a new receiver. Who needs to watch the news in HD anyway?

---

### MULTICASTING

---

With a distinct lack of the "value added" component in the HD area to urge people to migrate to the format of the future, an intelligent use of the DVB bandwidth would be intelligent multicasting. Imagine four feeds of *Seinfeld* that start every half hour, or four nightly news bulletins. Each channel has the opportunity to stagger its programming to lessen the tyranny of the "window" that locks shows into a single timeslot, and has introduced the concept of "time shifting" programs through the ubiquitous VCR. (Which is locked to the existing resolution....)

When a big event arises, say the broadcast of an AFL match, the programming merges into a single broadcast, carrying four views of the action, chosen by the viewer. This would require a rethink of the logistics of sports coverage, but it is nothing that a network could not adapt to tomorrow if called upon.

This is a great idea, as it extends the possibilities of the televisual medium into a kind of multichannel delivery system. It has enormous commercial benefits for the companies that transmit on this new system. The arguments that are not raised in the current debate are those about the nature of content, local content regulations, community interest and the like, but these interests don't have the lobbying muscle of the media and broadcasting companies.

---

### DATACASTERS

---

Noises are also being made from the internet "Industry" - principally from companies who resell bandwidth - service providers. The possibility of sending data packets by satellite is a real one. However, there are existing developments in low-orbit satellites that are designed to do this, and the "orbiting internet" is as prone to congestion as in internet-on-the-land-as-we-know-it. DVB spectrum allocated in this manner seems unlikely to provide a lasting benefit as the available (and very finite) bandwidth is eventually choked by unregulated data packets.

---

### SPECTRUM AS A RESOURCE

---

What is important is that the possibility of "allocating" spectrum on the basis of a worthy argument is beside the point. The point is that spectrum in the current mediascape is a valuable commodity. Unlike the pros and cons of debates about privatisation, spectrum is clearly about money, as is commercial broadcasting. If spectrum is allocated, it should be at a high price. It is a finite resource, and one that companies want to turn to commercial advantage.

*John Collette is head of Technology at the Australian Film Television and Radio School. (He aches for multichannel telecasts of Sydney Swans matches....)*