To the
Productivity Commission

Supplementary to
Submission on
Broadcasting Regulation
in Australia

Rules on media ownership and concentration

by Stewart A. Fist
Independent writer and journalist
NSW

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Executive Summary

We seem to be endowing the terms "digital", "convergence" and "diversity" with some mystical significance. No one ever defines what these words really mean. Instead, they just treat them with special reverence as if they are saying something highly significant about supposed changes in the way the world operates.

1. Technical: The concept of technical convergence, which dominates media ownership debate, is basically a fashionable myth, although it has some foundations in real, but rather trivial, technical changes. These changes do little to alter the balance of public influence and political power in the media, nor do they necessarily increase diversity.

The convergence concept appears to rest on a number of dubious beliefs:

- **a)** That all media are becoming digital and 'mono-technical'. Usually this is now related to the Internet, but in past years it has been related to a mish-mash of ideas, including Broadband ISDN, satellite systems, and coaxial cable networks.
- **b)** That this single-pipeline-for-everything will result in cheap means of media production available to everyone.
- **c)** That when everyone can produce media, no one will be in a position to exert more power or influence than others.
- **d)** That because delivery of all media <u>can</u> be done through a single system, it <u>will</u> be done that way.
- **e)** That cheap simple media <u>delivery systems</u> will be available to everyone, to reach and influence everyone, equally.
- **f)** That the world of power and politics works in this simplistic, single-dimensional way.

2. Media ownership: Convergence is mainly about storage and delivery systems and is therefore a technical issue which effects the media mostly through the various (plural) barriers to entry. However these are not the only <u>barriers to influence</u> — which is what media diversity is all about.

The concept of diversity is complex and also involves questions of ownership diversity, media-type diversity, and specifically content diversity. Convergence can also lead to greater concentrations of power.

3, Diversity cannot simply be considered in isolation. From the viewpoint of the society, diversity is a <u>quality function</u> -- but we need to consider the associated <u>quantity functions</u> also.

If there is more diversity of content but this variety is seen by less people, then the totality can be viewed as a form of dilution effect within the community. And, whenever any media's effectiveness is diluted, those with concentrated controls of large-scale media can exert the greatest power.

4. The idea is also current (and false) that the Internet is some sort of universal service that is capable of providing such alternatives to conventional media that the old cross-media ownership rules no longer need apply. There is very little evidence that the Internet is a new form of media within the current use of the term (mass marketed - trusted source of current community information). The Internet is really only a delivery service, comparable with postal services or radio waves.

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PART ONE: Technical issues

1.0 The mythologising of convergence

The term "convergence" is vague enough to be attractive to the pseudo-philosophers and future-predictors of the press, politics and big business.

The word seems to vaguely hint that the media is moving towards a 'monoculture' -- but of what? People are rarely specific about this. And for some strange reason, this monoculture trend is supposed to produce more diversity ... which you'd tend to think was an inverted conclusion.

1.1 Digital storage

Digital storage is said by some to be one of the key reasons why we have convergence. We can store information now on the same equipment: audio (CD-Audio), video (DVD) and text (CD-ROM) can all be stored on flat silver disks which can be read (and sometimes recorded) by the same machine.

This is seen as a key way in which digital information technologies lead to convergence -- and this, in a rather trivial way, is correct.

But when audio, video and computer text were also recordable on magnetic tape in the 1960s and 70s, no one thought there was any significance in the fact that all were analog. The value then, as with digital now, was that each technology levered off the developments of the other.

There was never any reason why we couldn't have used the same tape recorder/replay units for all three forms of media, but we didn't for reasons of

convenience. Audio tape was better smaller; computer tapes needed high tensile strength; video-tape needed width.

I don't remember people wandering around pointing to any mystical significance of analog-convergence based on the technology of magnetic tape.

1.2 Digital production equipment

Digital equipment for producing video, audio and text material has been a very significant development, mainly in terms of much higher quality for low cost.

Analog production equipment always suffered from a multi-generational problem (copies of copies degraded quality), so the image/audio quality standards at the point of initial recording needed to be very substantially higher than that which would be seen in the home. This meant that the early production equipment was very big and costly, and needed professional crews (and often full-time technicians) to keep it running to make a recording.

Now a football match can be covered reasonably well by a three or four-man crew with a couple of portable cameras worth only a few thousand dollars -- and the quality of the original will be preserved well through the digital editing and compilation processes (with editing possibly done on a Macintosh computer).

Audio and still-image and text information, has similarly benefited from digital technologies, for much the same reasons. Both the ability to make perfect copies without degradation, and the ability to remove redundant information (compression) by computer processing, have made the material better and more compact, at a lower cost of production.

There is little 'convergence' here, but the benefits of digital capture and storage and manipulation of audio, text and video information is very apparent.

1.3 Digital transmission

Digital transmission techniques are seen also to be a key reason why we have convergence. We can now transmit audio, video and text data down the same pipelines, or transmit them through the ether, either terrestrially or via satellite.

This again is nothing new -- and so the emphasis on single pipelines tends to be rather a superficial form of analysis. Some of our pipes are better for low-speed interactive use where reliability is the first consideration (telephone networks); some is best for multiple channel one-way distribution (radio and TV transmissions); some has interactive and broadcast capabilities, but can't

reach all people in a city (LMDS) -- etc. It is horses for courses, not whether something is theoretically possible, which decides these issues.

As far as convergence issues are concerned:

Terrestrial: Analog audio and video have always been transmitted from terrestrial TV and FM towers in much the same way, and text was often included into the scan lines of TV for the technology called Teletext. Teletext was, in fact, the first form of datacasting, and it had very little success, despite providing a quite useful and novel form of new media.

Satellite: Analog audio and video have always been handled by satellites, along with text in the B-MAC (first Aussat) system.

Cable: Analog audio and video have always been handled by coaxial cable systems, and the limit imposed by narrow-band telephone networks has only been with the bandwidth of the switches and exchange multiplexers -- not the access lines.

Test-type data over analog coaxial cable is now common place, and over telephone lines using modems, is ubiquitous. ISDN, which is the digital access line system for telephone networks, has been a conspicuous failure around the world (mainly because of price) despite its value in the transmission of data, voice and fax.

It should be noted that the Australia's inter-exchange telephone network (as distinct from the customer's access lines) is fully digital, using optical fibre and digital switching, and has been for some time. The Internet similarly uses a digital core transmission network, with analog dial-up links for most users.

1.4 Digital Display devices

One suggestion that appears to be constantly used as evidence of convergence, is that our display devices can now be used for more than one form of "media". Most often the link is made between TV sets and computer monitors, as if this proves something important.

However television is a communal shared media which is suited to common-denominator material suited for the whole family; computer data is individual-specific.

Web TV (owned by Bill Gates) is the most newsworthy "convergent technology" (supposedly) at present, even though it has been singularly unsuccessful. It allows a family to sit in front of a TV set and read their private e-mail and surf the Internet.

Since the quality of TV sets leaves a lot to be desired, WebTV requires conversion of the information by a special translator back at the head-end of

the cable channel, with the result that very low quality images (some so small they can't be seen) often result.

On the other hand, other evidence which often used for the existence of convergence, is that Personal Computers linked to the Internet now can show moving TV-like images, and play radio programs, etc.

While this is true, the quality is low (but useful for some news and current affairs programs) mainly because of bandwidth limitations. This is not a replacement for conventional family-shared, zonk-out television, but if does provide a research tool for those interested in specific information, and entertainment for individuals who want to play games.

PC-based television (including videoconferencing) has problems with bandwidth which may eventually be overcome, but only at enormous cost, and then not in the near future. The only reason that it currently works at all at present is that only because so few people use it, and so only a few share/hog the available Internet bandwidth.

MP3 (MPEG Level 3) audio is another claimant to the convergence crown. This is highly compressed audio which can be delivered at high quality to a PC over the Internet, then decompressed and played on the PC (with a sound card) or transferred to a small portable storage device, and used like a Walkman.

This has few convergence characteristics, but it mainly illustrates how easy it is to pirate quality music once it has been digitised and compressed. Previously people pirated such music using audio tape recorders.

1.5 The Internet

People often appear to treat The Internet as something dramatically new and completely different from the telephone network, when in fact it is evolutionary and has evolved from older X.25 packet-switching networks. This hasn't changed since the 1970s: The Internet essentially uses much the same technologies as the telephone service.

The main difference between telephone networks and the Internet is that telephony services need real-time point-to-point transmission of the voice, and therefore relies heavily on time-division, narrow-bandwidth channelisation of the transmissions down optical fibres, and the use of integrated circuit switches (under computer control). This is done so that the network doesn't introduce any unnecessary delays into the service (they are said to be 'isochronous').

The Internet, however, was designed for low-cost, ubiquitous transfer of text (later illustrations, then graphics and video and audio were added). This used the same transmission media (the same fibre in the same cables), but in a shared wideband way. Since intermittent delays in transferring text and illustrations are not a significant problem (and resulted in higher usage

efficiencies) the Internet uses digital routers instead of switches which can buffer the data packets. This creates a 'store-forward' network.

The router technology is probably the closest digital transmission technologies get to 'convergence' with computers, since a router is effectively a multi-port computer. Mind you, the telephone network also controls its IC switches with computers, so it is difficult to see much of great significance here.

2.0 The prediction mythologies

2.1 That in the future, broadcasting and telecommunications will merge.

This appears to be a popular belief based on the premise that if it is possible for them to merge, then they will merge. Broadcasting and telecommunications will eventually come to us all down a single ubiquitous pipe, presumably from the same source.

There may be some validity to this perhaps twenty years from now, but not in the immediate future. The current delivery technologies all have serious limitations when they try to step outside the boundaries of their designed services. Basically the owners of each form of electronic media (in the sense of cables) are trying to kludge up retro-fit electronics to steal some of the other's business.

Telephone access links: These currently use twisted copper pair for average distances (in the suburbs) of between 1 and 4 kilometres from the local exchange.

These wires are unshielded, and lie together in bundles of 50 pair. Normally the electrical signals down one wire would tend to interfere with its neighbours, transferring part of its energy and resulting in cross-talk or general noise in the system. However the term "twisted pair" signifies that the wires are scientifically twisted, like rope, to minimise this "cross-talk" effect.

The actual bandwidth available on the average 3 km twisted pair is probably in the order of 1MHz (1 million cycles per second — enough for 250 simultaneous 4MHz analog phone calls), but the switches and the interexchange telephone network is only designed to carry one at a time. So, in effect, 98% of the access line's bandwidth is wasted.

This has led to the development of DSL (Digital Subscriber Line) technologies, of which ADSL (Asymmetrical DSL) is the best known. It was designed to carry one channel of digitised video over the access link, while leaving enough bandwidth at the base, for a normal telephone connection.

The plan was for optical fibre to deliver multiple television signals to the local exchange, then for the customer to dial-up a connection to one of these

channels, taking real-time delivery of the television program over the phone line.

Claims are made that ADSL will carry 6 Mb/s (more than enough for a good standard-definition TV program with action) over conventional phone lines for distances up to 3 kilometres. Longer access distances result in lower rates, with the limit for video being reached probably at the 2 Mb/s point about 6 kilometres out from the exchange. Older cables, will of course, give more problems and reduced data-rates.

The doubt is that substantial numbers of customers in any geographical area (serviced by the same cable down the same street ducting) can get more than moderate quality pictures using this technology. Interference between individual twisted pairs in these multiple cables could be horrific.

Time alone will tell. It is difficult to believe any of the technologists involved in the current trials, or in the developments of ADSL. Claims made regularly in the past have consistently born no relationship to reality.

In the last few years it has been notable that the emphasis on ADSL has changed from it being a video-delivery technology to a new marketing emphasis on provide specialised high-speed Internet access. Internet services are far more robust when it comes to handling duct interference, and it is unlikely that many people in one geographical area will want to use them at the same time.

Probably ADSL will be a quite good technology for Internet applications since not everyone uses them at the same time, like nightly television.

Coaxial cable (HFC): The street coaxial cables run back to a street hub, and the signals are carried from there back to the head-end by optical fibre. These networks are primarily designed for one-way delivery of broadband analog television channels. In America the cable bandwidth is split up into numerous 6MHz channels, in Australia we use 7MHz, and in Europe, they use 8MHz.

Something in the order of 750MHz of useable spectrum (bandwidth) is available down each cable — with the lowest 54MHz generally being too noisy (it has bad interference from electric motors, etc) to use. This means that in the order of 100 analog television channels is possible down such a cable network.

Digital compression techniques can pack roughly 4 digital sub-channels (of SDTV quality) into each of these analog channel spaces -- hence the claim that we will eventually have 400 television channels.

The problem is obviously not in cable capacity, but in the ability of program providers to use the capacity available.

Many of these channels can be consumed by Near Video On Demand (NVOD) where the same movie (for instance) is replayed with a half-hour time delay, so people can opt-in to watch the movie when required. This is usually seen as a Pay-Per-View operation.

Some channels may also be consumed by quality audio channels and data-casting. More will be consumed by the inclusion of some interactive services (although many of these occupy the unused spectrum space below 54MHz)

Video-on-demand was in the news a few years ago as being "imminent", but it turned out to be another of the great technology myths. Now hardly anyone ever mentions it -- but it added greatly to the convergence myth.

Interactive cable: When the same cable system is converted for interactive use, each amplifier along the cable path needs to have new electronics added, and a second or third return fibre must be bought into use from the hub to the head-end. Upgrades of this kind are moderately costly, although the space has generally been left in the electronic boxes for such additions.

Telephony and Internet access signals are generally carried back to the head-end, where they enter the normal telephone network or Internet backbone, as per normal. So the interactive coaxial cable just replaces the twisted-pair as a form of access to the local exchange. However, it can provide short bursts of data at a rate roughly equal to the new ADSL services (which can provide it continuously) -- so the available bandwidth per user depends on the numbers sharing the service at any one time.

The problems that Interactive use of coaxial cable bring to the 'convergent' provision of these service are these:

1. Coaxial cable networks are generally very high quality while they are new, but they drop off steadily as they get older. So we are currently seeing the cable in Sydney and Melbourne at its peak, and experiencing it at its most reliable. Even so, cable modem systems suffer daily outages in Sydney and Melbourne.

The general quality of services will deteriorate:
- as the cables get older and start to crack;
- as connectors corrode; and
- as unwanted tails and old drops are left (creating signal reflections).

Electronics in the amplifiers will also deteriorate steadily.

2. Coaxial cable networks are shared networks, so the capacity available to each user depends on the number of other users simultaneously using the service. Again, we are seeing the cable networks at their best while only a few people use them; later we can expect rapid and repeated deterioration in service (for interactive use).

3. Coaxial cable access links for telephony are highly complex, involving electronics which are subject to unreliability, deterioration and problems such as lightning strikes. By comparison, the twisted pair of conventional telephony is nothing more than copper wire which is cheap, highly reliable and underground.

The conclusions I come to are simply that we are attempting to use a coaxial cable system beyond its design limitations. While coaxial cable is first-class for one-way delivery of television programs, it is very much a second-class way of handling interactive access for voice and data.

Australian companies seem to be doing this simply because the Optus HFC cable network by-passes Telstra and its ridiculous access rules and its extraordinary pricing policies.

3.0 Terrestrial wireless technologies

Many of the great gurus of communications and broadcasting technology have made pronouncements about the way we are transferring our services from wired distribution systems to wireless. Usually they have been wrong.

The analytical models that bring on these occasional bouts of prediction depend on the fact that wireless appears to offer the following advantages to an Australian service provider:

a) a way of introducing a networked service without the cost (both money and time) of installing a cabled network.

b) a way of providing a service scaled to suit the needs of new customers as they come on-line (no heavy sunk-costs before customers start paying)

c) flexible channelisation -- so the service can provide bandwidth on demand up to broadband,

d) mobile links.

The success of cellular mobile telephony is too well known to go into here, but what is less well known is that the parallel **packet-radio data** services that use essentially the same technologies, and these have not been a success. Currently there is little call on packet-radio for e-mail and data despite the fact that these services have been available for years.

However, faith in radio technologies among the radio enthusiasts is eternal. They continue to predict that the revolution that will follow the addition of more data to cellular phone services, and boost the idea that datacasting is the next great home and business information revolution. They've been predicting these things for decades.

Wireless local loop is little more than another attempt to by-pass Telstra, and, while it has some application in rural areas, it has never succeeded anywhere in the world when in competition to twisted-pair. It does succeed in mountainous areas, or island nations where wire is a problem. The main problem is reliability and vulnerability to storms, weather, etc.

LMDS (Local Multipoint Distribution System): This is a new broadband television technology, designed for distributing hundreds of channels of Pay TV using the 28—30GHz Super High Frequency band. It has high-capacity, short-range characteristics in theory, but its signals may not penetrate wet leaves very well.

This makes its suburban applications in a city like Sydney difficult to predict. Possibly only one in three Sydney homes could have a line-of-sight back to an LMDS tower -- but more in other capitals. It probably has no rural or remote applications because of distance limitations.

Opinions differ on LMDS: Optus obviously likes the potential of LMDS technology so much that it has decided to buy the company. AAPT owns the exclusive Australian rights (after Optus was prohibited from bidding for spectrum, along with Telstra).

The reason for Optus's current enthusiasm for an untried LMDS technology, is that it has these possibilities:

a) AAPT owns the total Australia-wide spectrum, yet it paid only $66 million for 850 MHz -- in effect, it has a very cheap, very-high-bandwidth monopoly of a large part of the new SHF band over the whole continent.

This 850MHz of radio spectrum is more than the whole world had for all kinds of two-way communications, radio and TV broadcasting (up to the top of the UHF band) until the mid 1970s. It is theoretically possible to squirt 120 analog, or 480 digital standard-format television channels out via this extraordinarily generous band of spectrum.

Companies like Optus need such a technology if it works -- and they need to make sure that competitors don't have it if it works also. Telstra doesn't need it a fraction as much because it owns both the twisted-pair copper in the ground and its own coaxial cable.

b) Since the radio waves travel only line-of-sight, it is possible to reuse this SHF spectrum every few dozen kilometres in a cellular-like structure like mobile phones. This extends its value for interactive applications, while limiting its abilities to compete in one-way broadcasting, The capital and operating costs are greater with LMDS than that of central transmitter towers with VHF or UHF channels.

c) While the limited range adds to costs for one-way transmitters, it also means that home or office transmitting equipment can use some of the LMDS

spectrum at moderately low output-power (so the kids don't get fried) to reach back to the base-station. This therefore makes interactive services feasible in association with their one-way broadcast (video, audio and data) services. So the broadcasting and interactive applications, taken together, possibly tip the balance of costs and make LMDS feasible - something lacking in wireless local loop, etc.

4.0 Satellites

There are two main types, constantly being confused.

4.1 GEOs: Geostationary satellites.

We've had GEOs now for many years and they have given good service as a cheap way of distributing television and other one-way (broadcast) signals to remote areas and other terrestrial transmitter sites.

The limitations of GEOs lie in the extreme altitude (38,000 kms over the equator) and in the available power in the satellite (solar only). In general, this means that:

a) interactive services have a real-time delay problem because the signal needs to travel a minimum of 76,000 kms (taking roughly a quarter of a second), and this introduces uncomfortable pauses into voice conversations, and slows down computer communications substantially (although there are some tricks which help overcome this).

b) the received power on the ground depends on the concentration of the footprint of the signal from the satellite. With Australia-wide beam coverage, a relatively large dish (a few metres in diameter) is needed to collect enough signal to produce an adequate picture -- and this doesn't make for cheap, easy-to-mount consumer products, especially in the city.

c) when the signal from the satellite is concentrated more on a smaller area of the country, it can be received by small home dishes, but this then tends to tie up a large number of the satellite's transponders, increasing the costs considerably. This is direct-to-home (DTH) satellite TV.

Direct digital television over satellite has been moderately successful in the USA (DirecTV), but it is generally seen as a substitute for cable services for remote users. Where the two coexist, generally the bulk of customers will continue to use cable. DirecTV offers about 150 channels.

4.2 LEOs: Low-Earth-Orbiting satellites.

We have two systems flying at present: the Big LEO already offering commercial services is Iridium, which runs an enormously expensive operation which is not proving to be at all popular.

The handsets cost $6—7,000 and the calls cost a minimum of $3.68 a minute, and up to $14 a minute overseas. This is being promoted as a global cellular voice service -- which can be used from anywhere on earth.

Globalstar, a rival Big LEO service, will be commercial in a few months with handsets at about $2000 and call prices well below that of Iridium (about $2 a minute). It may also be more reliable.

These satellite signals will not penetrate galvanised iron roofs, etc. and don't like any foliage, especially not wet foliage. Near to the equator, Iridium suffers some problems with line-of-sight to the satellites, because of the acutely low angle that will often be required. Services will always be erratic.

The only Little LEO service which is currently commercial is that of Orbcomm. This apparently can't be used in Australia because our VHF television Channel 5a is right in the middle of the spectrum it requires. It is a data-only service mainly for e-mail and monitoring. It could be an ideal cheap form of remote-area communications if the spectrum problem could be cleared up.

Supposedly coming shortly are broadband LEO satellites, like Teledesic -- which aim more for the business market, not at broadcasting. They will need large antenna mounted on buildings, so the real market here is as a competitive service to optical fibre for company links.

None of this has any substantial effect on convergence, or the general provision of broadcast media, at all. I include it only for completeness.

PART TWO: Media ownership and control

5.0 The Internet as media

The only vaguely possible "new form of media" that I see, is the Internet, and this categorisation is highly disputable when we are discussing the possibility of increasing media diversity. The Internet obviously adds something to the choice of information available to the general public, but it also dilutes the effectiveness of each communication since it is generally highly targeted promotion or propaganda, and only viewed by small numbers compared to television programs, radio or newspapers.

Also, the idea that people are influenced only by rational argument and the presentation of evidence and information is clearly false, and the effect of Internet communications must be seen against the backdrop of a society constantly bombarded by advertising, sensationalism in news and current affairs, public-relations inspired stories, and false and misleading information. Often quantity (repetition) has much more effect on the general public than quality ... a truism that guided Goebbels.

This is now a world where the media has had most of effects emotionally and subconsciously. It changes the lives of people through media-generated cultures of acquisitiveness, overtly sexual images, adrenalin promoting violence and adventure, and aesthetically attractive diversions of all kinds. The mass media doesn't often create overt rational changes in the society, but operates unobtrusively to modify our social and cultural background.

When people say "advertising doesn't effect my choice" they misunderstand how advertising works. No one knows how much he/she is effected by the fact that repetitive advertising makes them familiar and comfortable with a brand-name products, or how the subtle association of that brand-name with images of success (business and sexual), health and vigour, etc. effect their buying habits. I "know" that Sony and Pansonic are good, reliable brands of consumer electronics — but I don't know how I know.

The mass media also operates in ways that effect very large numbers of people by implanting in them some subtle sorts of 'intuitive' knowledge:
- that certain ways of acting are better than others;
- that certain ways of speaking are preferable;
- that certain political parties govern in their best interests; and
- that certain cultural norms are affiliated with media-defined products, groups and ideas.

If the viewers, listeners and readers were aware of this inculcation of ideas, they would probably resist them. But in fact most people aren't aware, and aren't analytical about their acquisition of a cultural and social background, and they soak these ideas up like a sponge.

A significant part (but certainly not the majority) of the Internet does not operate in the same way as the mass media. It does aim to information its readers on a more rational level. This is generally where the "diversity of information" idea comes from — and why the Internet is said to provide an alternative to television, radio and newspapers -- and thereby relieve the current ownership from restrictions on media domination.

I don't see any evidence of one being in competition to the other at all. As mass entertainment, the Internet is largely used as a games-playing device, or for pornographic image viewing -- while for the rest it is for electronic mail and keyboard chats. The Internet will probably only ever be used by a small percentage of population consistently for nightly entertainment

5.1 Information glut

The result of widespread Internet usage appears more likely to be data-smog or information-glut than anything that could be characterised as "increasing media diversity". The main characteristic of the Internet is the wealth of rubbish which is distributed as content.

However, for the discerning user, the increased access we have through the telephone wires to information resources around the world has given the researcher, scholar and journalist a better way of gathering information, and a way of checking local sources against international ideas. This is a definite advantage. Some of this then feeds into the general media in the same old way.

Those using the Internet in a more casual way will find themselves submerged in a morass of information -- some good, and most bad -- from which it is difficult to cull the reliable and useful without a lot of experience, and constant checking of sources.

The best analogy for the Internet as a diverse information source is probably a very large, very drunken cocktail party -- rather than a considered publications like a newspaper.

The sheer amount of information, and the quality-range of that information (which extends between scientific evidence, and deliberate disinformation) is quite extraordinary. The sheer mass dilutes the public effectiveness of good information, almost in an inverse ratio to the supposed gain in diversity.

5.2 Reference

My columns in The Australian newspaper are also available on-line at the News Ltd site, and many of them are later stored at the Australian Broadcasting Commission's site for later reference. I also have my own site <www.electric-words.com> which archives some of the older material.

However at least ninety percent of all e-mails I receive which refer to these articles, mention the newspaper material as their source. It is very rare for someone to say that they have read an article on-line.

I also find that whenever the electronic version has been accessed, this happens some considerable time after the column was written -- usually when a person wants to refer back to an article remembered from the newspaper a few months ago.

So despite the fact that I write about the telecommunications and Internet technologies themselves, and despite the fact that virtually all of my readers are computer-literate and regular Internet users, the impact of my column on the general public is still predominantly via the old printed-paper hand-delivered newspapers.

5.3 Internet commerce

The Internet also offers future large-scale site operators with media affiliations the possibility of dominating electronic commerce and some of the electronic-banking and payment systems.

The Internet possibly does threatens the classified advertising business of the Sydney Morning Herald, etc. because of its ability to categorise information in a much more granulated (and cross-referenced) way, but this is almost an isolated example of where the two are in direct competition.

It is also obvious that a large part of the media proprietors' interest in Internet services are in order to establish a beach-head, just in case. Like every other form of business, the sites (portals, etc) that win in the long run, will, to a large extent, depend on the financial resources of the companies behind them -- and this will depend on their media affiliations.

This commercial side of the Internet business is sure to lead to even more concentration of media power in the hands of a very few organisations.

5.4 Conclusion

The Internet is not a new form of mass media. It is more aligned to postal and phone services, but it adds a few new facilities and some visual and audio dimensions.

In terms of diversity of information and opinion, it serves mainly to extend the ability of the very few information-oriented people (probably no more than 5% of the population) to reach out to alternate sources.

Rather than increasing the diversity of ownership of much of the information available, the Internet could eventually concentrate it and related commercial businesses (banking and some retail) even more firmly in fewer hands.

6.0 Datacasting

Despite all the hoopla about datacasting it is nothing very new, and probably nothing very significant. We've had various forms of datacasting before, and the success has been limited. Teletext is the obvious case; it ended up being used for gambling (stock-market and horses) and weather reports for a while and then abandoned

The major difference today is that:

a) Many people have personal computers, and so have a way to hold and manipulate data transmitted from a central source. This might make some of the data more useful to specific users. (gamblers, business executives, exporters, primary producers)

b) The sheer bandwidth available today may make more selectable information available, and so extend the range of usefulness. But someone still has to collect, cull and prepare the information, so it will only ever be common-denominator.

c) The use of MP3 compression coupled with Pay-TV payments for the purchase of data-cast descrambling of music files may provide a new form of music selling.

d) The world is in the grips of an "Internet-hype" which sensationalises the value of anything remotely connected to Internet type services (witness the share-valuations of Internet stock). While this continues, datacasting will continue to be seen as important.

e) The digital television industry is looking desperately for some extra services to justify the change over to the new digital standard.

6.2 Data books/magazines

Some people seem to imagine that data books, data magazines, etc. will become important. I can't see any substantial value in a special portable (but highly fragile) large screen computer, being carried around when a paper book is much more convenient.

We've been down this road before, dozens of times and each one has failed. No one in their right minds wants to read an electronic book on a train going to work when they can read the newspaper, a magazine, or a paperback.

The risk of breaking the device or having it stolen, is probably enough to deter even the yuppies.

6.3 Datacasting with audio and video

Most of the interest in datacasting at the present moment comes about because it appears to offer a back-door way into possible television transmission in the future.

However with today's video and audio compression systems, and with personal computers available in many homes, it is possible for slow-scan video and low-quality audio to be carried in packet networks, and create a form of low-quality video-on-demand.

In the USA, the digital High-Definition Television move has been a bit of a disaster, and many people are looking for the "killer application" to make it work. Datacasting is often thrown into the pot here, because it represents the "big unknown" and therefore its commercial value can't be either proved or disproved.

Australia seems to be taking a very similar approach -- but here datacasting appears likely to be offered as a consolation prize to those media companies (News Ltd. and Fairfax) promised a FTA license in the distant future but who are prohibited from entering this market until 2006.

If these companies are to be able to compete at all in the future, they need to be involved early in the process and have some say over the two major set-top box standards:

a) those for the API (Applications Program Interface)

b) those for conditional access.

News Ltd: is one of the world's major manufacturers of set top boxes, and it wants to ensure that it retains this place in Australia.

6.4 Conclusion.

In my view, datacasting will be another moderately useful addition to our media and communications services, but one of almost trivial importance for a number of years. It is difficult to know how it will evolve.

7.0 Cross-media ownership

The diversity of ownership in Australian print and broadcasting media is not healthy. Over the last three or four decades we've seen more and more of the key media outlets owned and controlled by fewer companies – and these companies are often dominated by one individual.

And with the recent close association of the Murdoch and Packer interests in a number of business ventures (Foxtel and OneTel), this country is in danger of having a very restricted range of information and opinion, from two very like-minded, business-oriented, family companies.

I believe the present laws are far too relaxed in their limitations of cross media ownership, and that we should be moving to a far more restrictive regime. For instance we need to create a sector-distinction between newspaper and magazines (with cross media ownership rules) and between national and suburban press.

Media is not just another form of widget manufacture and distribution. It influences the foundation of our culture.

We should also look at the total information resources of cities and regions and apply strict regulations to ownership (perhaps no more than 10%) whenever our major cities only have one morning or evening daily newspaper. This isn't regulation of cross-media ownership, but of single key-media ownership.

7.1 Media political power

The owners of the mass media often like to pretend that they exert very little influence over what is published, or what is seen or heard by the public. In

terms of direct demands issued from on-high, the proprietors writing front-page stories and headlines, or dictating leaders, etc. the situation is much better now than it was twenty or thirty years ago.

However the end result is not much different. It is just that the influence is less direct and open.

Today's journalists and section editors are much less independent than they were. The old fiercely-independent journalist type has gone from newspapers, leaving behind an environment created by journalists and editors who see their job simply in terms of being a comfortable career. Investigative journalism has almost disappeared, and everyone is happy provided no one rocks the boat too much.

Self-censorship is far more of a problem now. Journalists write within the known limits of the hierarchy (defined by the proprietor's interests and sometimes the editor's biases) -- but without those limits being ever spelled out in memos, or dictated as a direct order.

The fact that these media companies can get governments to cancel MDS licenses, spend billions of taxpayer money on satellites, block the use of the fourth commercial channel, and generally restrict spectrum access for their own oligopoly benefits, is enough evidence of the power they consistently exert over both Labor and Liberal-Coalitions in Australia.

7.2 Family companies

The media, almost alone of all the major business sectors around the world (since the Ford company lost control of car manufacture) is the last bastion of the multiple-generation family company, where power is handed down from father to eldest son like a crown. This form of aristocracy has only been possible to sustain because:

a) media companies can exert enormous political and economic power.

b) the wealth generated is enough to finance various measures to block (or acquire) effective competition when it arises.

c) the barriers to entry are so high that the incumbents can lever enormous commercial protection from competition -- simply from the evolution from small newspapers, to multiple media owners, over the years.

7.3 How powerful?

The best economic indicators of the power that mass media proprietors have to influence public opinion, lies in the advertising revenues their companies attract, and the money spent on public relations in an attempt to influence content.

In Australia the total advertising market in 1998 was $7.06 billion. Free to air television has a $2.4 billion share, while newspapers have $3.01 billion, with magazines, radio and outdoor advertising making up the rest.

The Internet advertising revenues is infinitesimal.

Public relations in Australia is now an $800 million business.

Australian companies don't spend these billions regularly every year without getting results, so clearly this is some indication of the value of owning or influencing media. The whole purpose of this expenditure is to modify public opinion or buying habits.

8.0 Australian content

I was the chairman and coordinator of the Australian Film Industry Action Committee during the Whitlam era when Australian content rules were first introduced. Even though these initial rules were written in a half-hearted way, the Australian film production industry would not have got off the ground without them.

Australian content regulations must be preserved. Any enterprise which sinks almost all of its costs before any income is generated -- and which can then amplify (duplicate) the consumption of this product infinitely with little or no additional cost (satellite direct-to-home, for instance) has a very substantial problem competing against wealthy incumbents.

We often hear the term "dumping" used for Hollywood films which reach Australian cinemas at revenue-expectation levels well below the cost of production in Australia. In reality, such terms can't be applied here -- because the problem is that of the sunk costs, not the on-going costs of production (virtually non-existent).

However the effects are the same -- Australian TV production could never compete with Hollywood without tax subsidies, and it only became attractive to show Australian films to Australian audiences when the content rules forced the stations to invest and show local product.

So content rules are the only way Australian production for television can be maintained. Over the years this has provided a domestic base for cost-recovery, and as a result it has created a local market for Australian cinema films (this didn't exist before 1972). As a secondary result, Australian cinema also experiences moderate profitability in some of its better films flowing on from the TV rules.

8.1 Siphoning

The problems of siphoning extend from the fact that Pay TV operators are using third-line forcing, via subscription, to lock in viewers. This means that they will suffer considerable losses by depriving viewers of key sports finals, etc. in order to drive them over from FTA to Pay TV.

The problem is really only solved by unbundling the subscription sales and making every program available on a free-to-air/commercial and/or Pay-per-view basis, with percentage mark-up capping of the PPV pricing.

The present system is a useful stop-gap measure only.

END