FIBRE

Film Industry Broadband Resources Enterprise

Submission by FIBRE (Film Industry Broadband Resources Enterprise) Pty Ltd

To the House of Representatives Standing Committee

Inquiry into the future opportunities for Australia's Film, Animation, Special Effects and Electronic Games Industries

FIBRE (Film Industry Broadband Resources Enterprise) Pty Ltd is pleased to make the following submission to the House of Representatives Standing Committee above named inquiry.

About FIBRE

FIBRE Pty Ltd was formed by a working party of industry participants and with $650,000 funding from the Department of Communications, Information Technology and the Arts (DCITA) in October 2001. From 1st November 2001, FIBRE set about negotiating with telecommunications carriers to achieve the aggregation of film and television post production industry demand for more affordable bandwidth to enable collaboration within the industry and therefore provide the means by which they can compete more effectively for international business.

As a result of the above funding, FIBRE has acquired significant expertise over the last eighteen months in the areas of post production industry structure, location, size, data usage, bandwidth requirements and broadband applications and usage. This knowledge encompasses local, regional and international use of data transmission.

FIBRE will respond to each point of the Terms of Reference but will concentrate most of its attention in the areas of greatest knowledge.

Executive Summary

1. FIBRE notes that the data relating to the film and television sector is insufficiently detailed for many purposes. Comparable figures for the electronic games sector are not available. Because of the changing nature of this industry group, it is important that more accurate statistics are gathered for the industry as a whole.

2. The economic health of the film and television production and post production industry enables the cultural contribution of the industry. Well-developed local capabilities attract international production to Australia, while conversely, local content is enabled and subsidised by those international productions.

3. The costs of bandwidth are not the only barrier to growth. It is equally the business models or charging regimes by the telecommunications carriers that are inappropriate

4. Genuine broadband connectivity within and around Australia remains underdeveloped. The issue of the cost of bandwidth across the world has always been a major barrier, but it is as difficult to get out of one's own front door as it is to cross the Pacific Ocean!

5. The skills inherent in this industry, those of image management, will be increasingly required across the whole economy as we move more and more to communicating with each other in images.

6. Education and training in the use of moving images needs to start in Grade 5 and 6. Digital technology is bringing "storytelling in pictures" within the reach of individuals, not just film producers and television networks. The ability to use digital technology to achieve that successfully is essential.

7. Australia's existing skills base must be used to enhance opportunities to export training, and for international co-productions, both of which have flow-on effects in general business relationships internationally.

8. Film, television and multimedia is a relatively small sector, and largely made up of SMEs. It needs a cohesive approach by State and Federal Government jointly to establish support and nurturing programs to grow the sector.

Terms of Reference:

a. the current size and scale of Australia's film, animation, special effects and electronic games industries;

The following data is the most current data that FIBRE has been able to obtain and is taken from the Australian Bureau of Statistics. In discussions with the ABS, we have indicated to them that the data is not sufficiently detailed and can only really be used as a guide. For example, wedding photographers and videographers are included in the statistics. Although the statistics are not as detailed as we would like, FIBRE is satisfied that the percentage of SME (Small and Medium Enterprises, i.e. those employing 4 or less staff), businesses in this industry is close to 80%.

The traditional delineation of industry classifications in this rapidly changing sector is an inappropriate segmentation device.

FIBRE was established by Post Production companies, but has identified that there are a range of digital content creation companies the business model of whom is very similar to that of the traditional post production houses. That business model reflects industries who work on a project by project basis, this is turn translates to a very 'bursty' or 'peaky' need for access to large broadband pipes. This is discussed in more depth under the Terms of Reference (d).

Industry Statistics – Film & Video Production Industry

Businesses at end June 2000

State	Number	%	Income $m	%
NSW	1112	56.3	916.6	62.2
VIC	534	27.0	339.4	23
QLD	122	06.2	146.1	9.9
SA	85	04.3	31.2	2.1
WA	86	04.4	32.3	2.2
TAS	9	00.5	2.0	0.1
NT	7	00.3	2.2	0.1
ACT	21	01.0	4.1	0.3
Total	**1975**	**100**	**1473.8**	**100**

Total income for Industry **$1473.8m**
Operating profit (before tax) **$77.0m** ($77million loss in 1996-97)

Business Size

Persons	Number	%	Income $m	%	Wages & Salaries $m	%
0-4	1609	81.5	433.0	29.4	98.0	26.2
5-9	177	9.0	104.9	7.1	24.3	6.5
10-19	77	3.9	237.0	16.1	31.3	8.4
20-49	68	3.4	175.8	11.9	45.4	12.2
50-99	19	1.0	124.5	8.4	39.3	10.5
100 or more	25	1.3	398.6*	27	135.3	36.2
Total	**1975**	100	**1473.8**	100	**373.5**	100

***Operating profit before tax $-23.6million (loss)** *Australian Bureau of Statistics, 2001, Film and Video Production and Distribution (8679.0), Commonwealth of Australia [ISBN 0 642 47732 9]*

In order to understand and better meet the needs of the film Post Production and Production sector, the sector itself has to be defined. This is not easy for the a number of reasons.

- The term "post production" is used in various ways by different parties to mean different things (example in the TV industry "post production" routinely includes all editing functions).
- Film and Television are often grouped together, as a number of companies and individuals provide services for both media. The current inquiry, however, clearly excludes television from its terms of reference
- Some special effects are added during the filming process (in production – e.g. animatronics, pyrotechnics) and some after (e.g. digital compositing)
- There are numerous, and very specialised activities within this sector, sometimes carried out by only a few companies. In addition these are sometimes combined in a company with other activities that would not generally be thought of as "film post production" (example sound recording studios offering over dubbing, animation studios also working for TV, video and the web).
- The term itself is misleading, as the advent of new techniques, many of which are digital, has meant that many traditional "post production" functions are now carried out in the "pre production" stage of filming

The Screen Digest Report on the Implications of Digital Technology for the Film Industry (September 2002) quoted William Sargent of Framestore CFC as saying "Digital is enabling every aspect of the film process to be non-linear. The term "post" production is a misnomer. We are now a digital studio".

The traditional delineation of industry classifications in this rapidly changing sector is an inappropriate segmentation device. ANZSIC codes do not permit the array of activities undertaken under an "umbrella" title of "post-production", they are far too prescriptive and outdated.

The current size and spread of this industry cluster is a significant factor in its bandwidth and infrastructure issues. This is discussed in section d).

A factor that must also be taken into account when assessing the dimensions of this industry segment is not only the blurring of the lines between the traditional roles within Post Production, but also the blurring of the roles between film and television production and post production, interactive games development and the interactive media industries. An article in the 31st May 2003 edition of the Sydney Morning Herald magazine ICON read "Bytes! Camera! Action!" and "Lights! Camera! Joysticks!" "How the Matrix is blurring the line between movies and games". The blurring of the line between all these once disparate sectors is increasing as the model of "make once for many devices" takes on a real meaning.

b. the economic, social and cultural benefits of these industries;

Economic and cultural values

The economic health of the film and television production and post production industry enables the cultural contribution of the industry. Local content is enabled and subsidised by the international productions attracted to Australia.

At the same time, the success of attracting international productions is based upon a well-established, highly-skilled local production industry.

Image-based communications

The significant factor is the increasing use, by all sectors of the community, of images as information, rather than simply numbers and text.

An often unrealised, but significant, economic benefit that this industry brings to the nation is an underlying, crucial skill-set in the ability to understand how to manage and manipulate images. The nature of communications is changing to one that increasingly utilises the moving image to convey a message. The knowledge and experience that resides within the creative industry sector is increasingly going to play a significant role in the management of communications of the future. The existing skill base in the imaging industries must be maintained and developed, if the imaging industries are to grow to their potential. However, there is a far larger issue. Communications throughout society are becoming faster, more intensive, and more image-dependent. Film & Television program makers and Games developers have the skills to manage this trend to best advantage, to the general benefit of the country.

Many recent reports including the Broadband Advisory Group report of late 2002, have pointed to the need for broadband connectivity throughout the country's infrastructure: not only media production industries, not only domestic users, but banks, educational establishments, businesses, airlines, schools and the medical sector all have increasing demand for broadband.

Of course there is an increased use of computer data bases and internet transactions, but the significant factor is the increasing use, by all sectors of the community, of images as information, rather than simply numbers and text. "One picture is worth a thousand words" well describes the situation with bandwidth. While one picture may or may not communicate as much information as a thousand words, even a small thumbnail image requires as many bytes of data as several screens of text or numbers. Moving images require many times more.

Working with digital images therefore requires a range of advanced techniques in order to maximise the resources available, while the use of images rather than text calls for skills in design, picture editing, etc that are familiar to those already working in film, television and games. These industries, the subject of this report, form the basis of the new skills required, increasingly, in the ICT (Information Communications Technology) industry that now underpins almost all the community's enterprises.

Synergy of locally-funded and overseas-funded productions

Film production is traditionally regarded as a cultural industry, providing a well-demonstrated national identity for Australia and Australians. The film industry in particular has been a vehicle for an emerging national identity through production of identifiably Australian stories, and the mix of "pure entertainment" with more deeply significant but perhaps less commercially attractive productions has worked well.

Recently the encouragement of foreign production in Australia (alongside the identifiably local productions) has further enhanced the synergy by providing a stream of employment for local technicians and actors and business for local facilities such as studios and post production companies.

Extent of local production

In the year 2001-02, the total value of production (feature films and TV drama productions) in Australia was $897m. As well as 68 wholly Australian productions, there were also 12 foreign productions worth $413m, of which over half ($216m) was spent in Australia.

Type of production	Number	Spent in Australia	Total Value
Local production*	68	$336m	$343m
Co-production**	8	$111m	$140m
Foreign production***	12	$216m	$413m
Total	88	$662m	$897m

(AFC National Survey of Feature Film & TV Drama Production 2001/2)
* Local productions are those under Australian creative control
** Co-productions are those with a mixture of Australians and foreigners in key creative positions
*** Foreign productions are those under foreign creative control but with a substantial amount shot in Australia

The Australian Film Commission estimates that feature film and TV drama accounts for about one third of all audiovisual production in Australia. While the additional two thirds includes documentaries, corporate video and non-dramatic TV production (almost entirely financed within Australia) it does not include the electronic games industry or other interactive media applications. These sectors are not well reported by any agency, but it is reported that the world-wide earnings from electronic games now matches the earnings from feature film exhibition .

While the total amount spent in Australia on foreign productions is 32% of the total amount spent in Australia, the actual number of foreign productions (a crude indication of screen-time) is just 13% total productions.

Sources of funding

Turning to the source of funds as distinct from the creative control of the projects, total foreign investment varies considerably from year to year, due to the impact of one or two very high budget foreign productions such as Matrix 2 and 3. However, AFC estimates based on 2-year rolling averages show a consistent figure of $17m per year foreign investment in creatively Australian films, while investment In the high-budget foreign films is usually almost entirely foreign-sourced money.

The contribution of foreign earnings of $274m from feature films alone is a significant boost to the viability of this sector.

Creative control	number	Total value	Local funds	Foreign funds
Australian	30 (77%)	$129m	$87m	$42m
Foreign	9	$213m	-*	$213m
Total feature production	39	$342m	$87m (20%)	$255m

(derived from AFC National Survey of Feature Film & TV Drama Production 2001/2)
* not shown in report but believed to be very small

These figures underscore the relationship between the cultural and economic values of media production in Australia. Looking just at feature films, 30 out of 39 were entirely under Australian creative control, but these attract considerable overseas investment which provides earnings for local production facilities and individuals. In

other words, 77% of features were creatively Australian, but only 20% of the money spent in Australia on film production came from Australian sources (including a large proportion of funding from government sources), the remaining 80% being from foreign sources.

In 2000, Australian Bureau of Statistics figures show that the film and television production sector across the board had an income of $1,474m. In this context, the contribution of foreign earnings of $274m from feature films alone is a significant boost to the viability of this sector.

Continuity of work

Production and post production facilities companies use expensive equipment which in the current technological climate has a fairly short life before obsolescence. Much of this equipment (for example digital film data scanners and colour correction systems, 24P High Definition cameras) is only economically viable if it enjoys constant use in production.

Producers would not have started to bring productions here without the talent base and high technical standards.

There has been considerable investment in infrastructure in recent years – brought about largely as a result of investment in new digital technology not only for special effects in films but more so for government-mandated digital television. However, as shown above, the sector as a whole has a small and variable profitability (5.4% profit in 1999-2000, but the largest 25 companies returned an overall loss of 6% in the same period).

Lower-level equipment however is not adequate to achieve the standards required for international distribution. Foreign producers will not bring productions to Australia unless the latest equipment is available. Australia's domestic production budgets and levels are not, alone, enough to sustain and support the local production facilities and infrastructure at the level they require: so the additional income from foreign productions is not just an attractive bonus, but absolutely necessary to maintain a sustainable level of production.

Conversely, it has been the ongoing recognition of locally produced films that has made Australia a highly attractive venue for foreign production. Producers would not have started to bring productions here without the talent base and high technical standards that were demonstrated so successfully in the film renaissance of the 1970s and 80s and continue today.

Cultural values

The cultural benefits of the film and television industries have been widely canvassed and these will be addressed in other submissions.

Electronic games and interactive media, may not at first sight lend themselves to obvious "Australian" traditional cultural images such as those famously and successfully portrayed in feature films – from the "bush" images of *Ned Kelly* and the stereotype *Crocodile Dundee* through the historical *Newsfront* or *Rabbit Proof Fence* to contemporary films such as *The Bank* or *Lantana*. But games none the less form an increasingly influential source of images and values for their audiences and users.

Meanwhile, films such as *X-men, Lara Croft, and The Matrix* series dominate cinema screens, but are also linked to websites and games in a conscious multi-faceted marketing attack. The characters are the same as those on the cinema screen, and

locally relevant situations and plots, the particular mix of social and ethnic appearances, as well as underlying items such as language and body language, help to reinforce the cultural values of the country of origin of the games. It is important to encourage games developers in Australia so that Australian film productions with local cultural values can also be echoed in corresponding websites and games.

c. future opportunities for further growth of these industries, including through the application of advanced digital technologies, online interactivity and broadband;

The ability of the Australian digital content creation industry to compete globally is greatly enhanced when the cost of bandwidth is within their economic range.

Collaboration and Networking

It is shown above that Australian production and post production facilities are predominantly in the SME sector. Only 25 companies employ more than 100 people, and these companies report very variable profits and often losses. Foreign film producers – especially in Hollywood – are used to working with a much greater choice of companies, all of them larger and more richly resourced. In order to win tenders, it is often necessary for Australian companies to collaborate in a variety of ways – sharing resources, subcontracting parts of work, etc. It is also advantageous for these companies to work together in marketing themselves overseas. For smaller local productions, however, these same companies are rightly competitive with each other, and this competition is vital to the efficiency, creativity and quality of services provided.

There is a high barrier cost of connecting many of these companies whose locations tend to be in outer metropolitan or medium density areas rather than the easier-to-network high-rise CBD.

Working collaboratively – particularly on digital visual effects, on picture editing, and on sound post production – involves a number of stages of highly specialised tasks being performed by different companies, and the frequent exchange of image and sound files. A high-speed broadband network connecting these companies is highly desirable.

Examples of local or international collaboration requiring broadband networks include:-

- Sending digital files of scanned film images from laboratory to effects house
- Sending compressed rushes, edits etc to producers for approval
- Sending CGI elements of commercials to overseas agency clients for approval
- Recording "ADR" sessions while the actor is in a remote location
- Linking music recording studio with sound editing facility
- Remote collaborative digital colour grading with the director, remote from the grading facility but participating in the grade
- Linking interstate branches of post production facilities for any of the above
- High quality Video-conferencing sessions during production meetings, previews of work etc

However, as will be argued below, there is a high barrier cost of connecting many of these companies whose locations tend to be in outer metropolitan or medium density areas rather than the easier-to-network high-rise CBD. Additionally, ongoing costs have traditionally been based on steady data traffic such as that required by banks, rather than the project-based, highly irregular demands of the post production sector.

FIBRE has been working to reduce these barriers for the film industry, but suffers itself from the basic dichotomy of needing to reduce prices to customers to a minimum and yet still earn enough to maintain its own operations.

Digital Cinema

The growth of digital content for use in the Cinema and/or Theatre environment presents a significant opportunity. This is not necessarily the full blown Digital Cinema, which we believe is some way off yet, primarily for economic, but also, technology reasons. However, other content that either is enhanced by a "theatrical experience" environment, or complements a traditional 35mm film experience (advertisements, trailers, news, weather, rebroadcasting of stage plays in theatres, etc) is a very real possibility for delivery to cinema complexes.

The use of digital projectors for these traditionally "non-theatrical" forms may extend to interactive forms of entertainment – where audiences participate in the outcome of the "film". This is effectively a convergence of the cinema with electronic games venues, and could bring new opportunities for interaction between the two areas of digital image creation.

The challenge will be enabling the cinemas outside the CBD and inner suburbs to receive digital content in a timely and real-time (where necessary) manner, and at a cost that is not exorbitant. Satellite is currently the only viable means of achieving that degree of distribution, and this is being used in the USA to deliver content to remotely located servers which is then delivered to the theatre complexes via a "last mile" solution of fibre or copper. In more remote places the satellite services delivers directly to a dish at the theatre's site.

Enhanced opportunities for digital theatrical distribution

Feature film distributors in Australia are predominantly local branches of foreign companies – the major Hollywood studios. The distribution and exhibition sector of the film industry represents a significantly larger part of the economy than production: in 1999-2000 total distribution earnings (including video rentals, games etc) were $1,142m, while box office receipts alone in 2001-2 were $845m (up from $812m the previous year).

It is possible that opportunities might open up for typically low-budget Australian productions to be distributed at low cost more widely and so to compete more equally with big foreign studio productions.

The vast majority of films shown are of course foreign (American). In 2000-01, this led to an outflow of $634m in import costs of feature films, TV programs and videotapes. In that year, Australian films represented 7.8% of cinema box office income (a near record: the average of the past few years has been below 6%). By contrast, and as a measure of the saleability of Australian film & television productions, in the same period they earned $107m in export sales (overseas distribution). *

*Australian Film Commission "Fast Facts".

The net outflow of funds reflects the greater box-office earnings of foreign films in Australia. The undoubted popularity of "blockbuster" Hollywood films is compounded by the ability of the distributors to make large print orders, showing the same film on a great many screens, accompanied by extensive world-wide promotional campaigns. While Australian films accounted for just 7.8% of box office receipts in 2000-1, the actual number of Australian films released was 11% of all released films.

It is not unusual for Australian productions on much smaller budgets and with only modest promotional campaigns to out-perform similar foreign films on a 'tickets per screen" basis i.e when the number of prints in circulation is factored in. Print orders are limited by the distribution budget available – usually less for local films.

The eventual shift to digital distribution is likely to alter this pattern, so that the incremental cost of distribution to a number of theatres is much less. It is possible that opportunities might open up for typically low-budget Australian productions to be distributed at low cost more widely and so to compete more equally with big foreign studio productions.

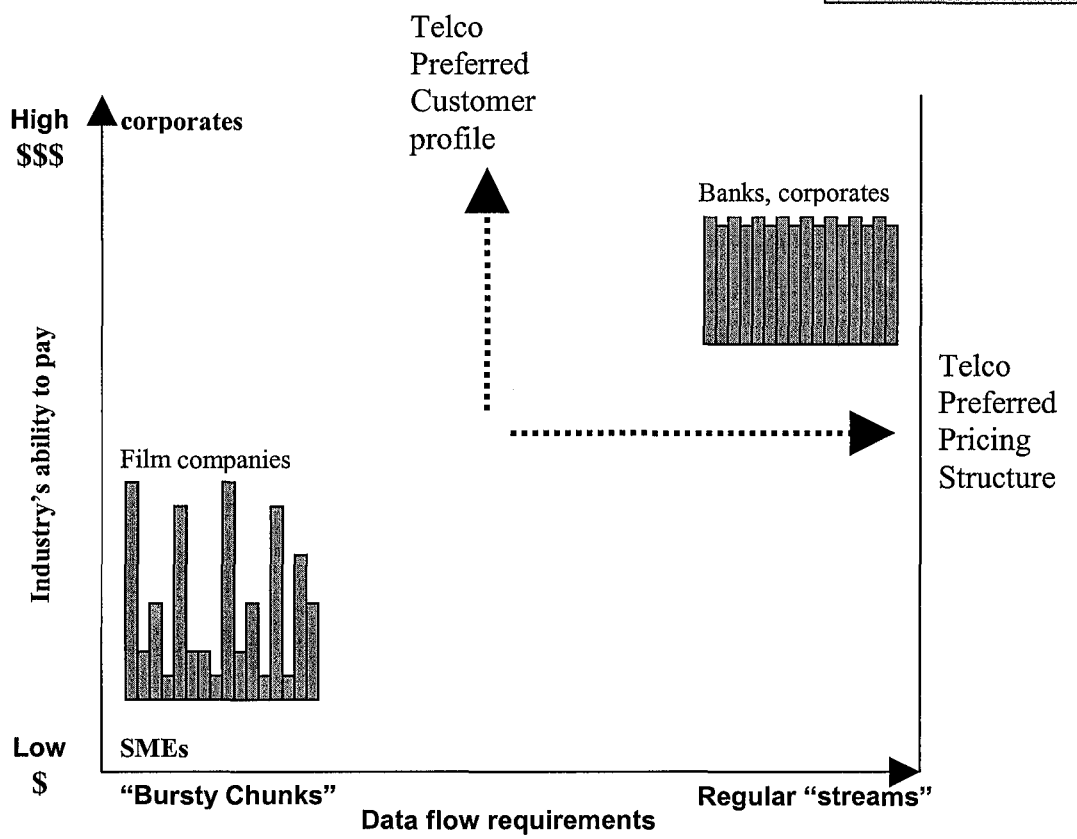
d. the current and likely future infrastructure needs of these industries, including access to bandwidth;

In assessing the infrastructure needs of the industry over the last 18 months, it has become very apparent that the needs vary enormously. The issue is much more complicated than just seeking a "thick pipe". The issue is threefold:

- The access method – DSL or Fibre or Wireless
- The FIRST MILE access bandwidth – How large a 'pipe'
- The charging regime – amount and frequency - " streams or bursts"

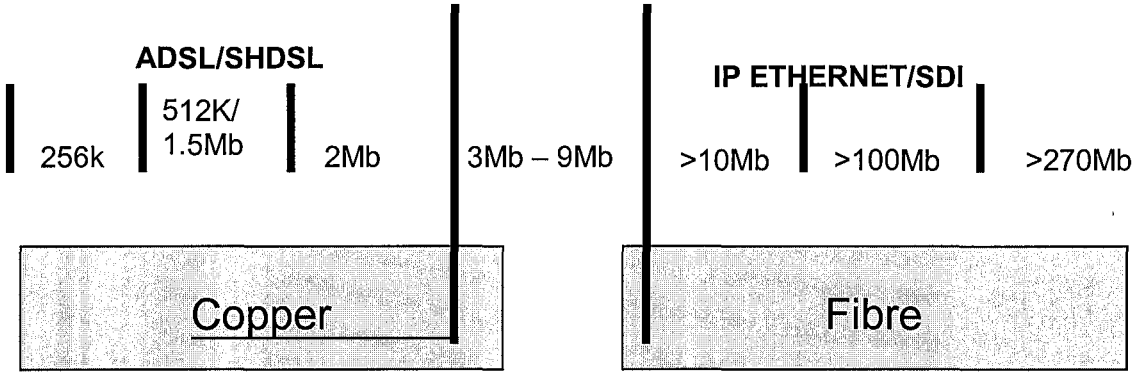
The issue facing the producers of digital content is not just about the cost of bandwidth; it is equally about the business model of the telecommunications carrier.

Figure 1: The Price and Business Model Gap



The Access Method:
The choice for the industry of which access method they will seek is dependent on a number of factors. Firstly how close are they to their nearest telephone exchange, or a carrier's fibre, or do they have "line of sight" for a microwave solution. They must simultaneously calculate how much data they send out and how much they bring in on a monthly basis.

Figure. 2. Broadband Markets



It is the experience of FIBRE that businesses in the digital content creation industries seeking cost effective bandwidth are not based in the CBD areas of cities in Australia, where the fibre has mostly been laid, rather, they are metropolitan based businesses. This is a very definite choice by the industry. It is a choice significantly driven by the economics of property prices, and also the style of their business. In the same way as a major financial institution would not seek a head office location in the suburbs because that is not the 'style' of the industry, so the creative sector seek a creative environment in metropolitan areas. They also seek to be close to the increasing number of studio lots near capital cities. Studio lots use large acreage and are therefore seldom near city centres (Fox Studios in Sydney is unusual in this respect). By not being CBD based the industry puts itself outside the reach of existing fibre telecommunications infrastructure.

When digital content creators are selecting an access method the compelling argument for fibre from a speed and quality basis are overridden by the economic reality of provisioning fibre to the premises of a customer. Recent quotes obtained by FIBRE show that the cost of provisioning underground fibre is $200 per metre. So an organisation that is 500 metres from a telecommunication carriers network faces an entry cost in excess of $100,000. In an industry which created a 5.4% profit margin in 1999/2000 and frequently shows a loss, this level of cost is not sustainable.

If fibre is too expensive, the content creator may have the option of using DSL. Unless the company concerned is located very close to a Telephone exchange which is enabled for synchronous DSL services, they will be limited to ADSL (Asynchronous) where the outbound speed is limited to kilobits per second (kbps), instead of megabits per second (mbps). ADSL is designed for domestic consumers who download from the internet but have little or no need to upload large files. It is entirely inappropriate for Australian content creators who need to upload and download equally large files during production, or for those competing in export markets, who need more upload (outbound) than download capacity..

The third possibility for access is wireless. Microwave systems are a possibility, they are not as robust as fibre based technology, being adversely affected by loss of line of sight and severe weather, but they can provide up to about 40Mbps, which in a licensed spectrum is reasonably reliable. The cost of installation is significantly

below that of fibre, but more than DSL services. Again, in order for the largely SME market, to get the best pricing, a demand aggregator is required and therefore one provider must be able to offer all three of the above access methods for it to work successfully.

The 'first mile' access bandwidth:
Following on from the discussion about the access method is the size of the 'first mile' pipe to be provided.

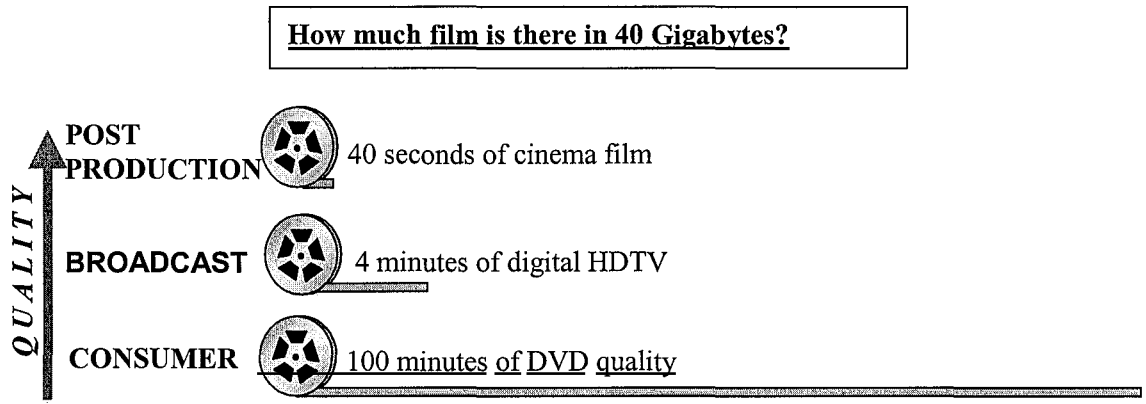
FIBRE uses the term 'first mile' very deliberately. The term 'last mile' is a term coined by telecommunications carriers to explain where their customers sit in the scheme of things. Especially the residential customer. The telecommunications network is the centre of the universe and the customers "out there" somewhere, at the 'last mile'.

The term 'last mile' also denotes a DISTRIBUTION link, the final stage of delivery. For the content creation industry the opposite is true. Their industry is where the content all starts: it is a CONTRIBUTION link.

In broadcasting parlance, the difference in the terms contribution and distribution are very well understood and refer to the quality of the content being carried. When content is being created it must be at the highest possible quality because so much will happen to it in terms of editing, transmission, more editing, compression, etc, at every stage the content loses some of its quality, and in order that the distribution quality is acceptable, it must start off as high as possible. The higher the quality, the larger the data file and the bigger the pipe needed to carry it in anything like an acceptable time.

This highlights the extremely large size of image files compared with any other type of data normally considered in ICT and telecommunications applications.

Figure 3: Size of Moving Image Files



The quality of the work being produced and sent on a daily basis for viewing at overseas locations, e.g. daily rushes from the Gold Coast to Los Angeles as part of the post production process, is being assessed against work being produced in Los Angeles. Unless the access pipe in the Gold Coast is able to offer the quality at the price to compete with the local offering in LA, the product of the post production house here will be seen as inferior.

The actual size of the broadband access pipe realistically should not be termed broadband for this industry at any speed under 2Mbps, more often 10Mbps. 10 seconds of full-resolution images for digital effects work would take 15 minutes to transfer using a 100Mbps connection, (or 12 hours at 2Mbps, the fastest ADSL connection).

The Charging Regime:

As the diagram above indicates, the issue facing the producers of digital content is not just about the cost of bandwidth; it is equally about the business model of the telecommunications carrier.

The digital content creators are 'chunky' and erratic users. If they have a project on, then they will use significant amounts of data, in both directions. However, when the project is finished they would prefer to drop the size of the pipe that they have been using to one of more modest dimensions.

A 'bandwidth-on-demand' service is rare and really only viable for the 2Mbps and 10Mbps + users. The significance of an offering of this nature is that the costs of the bandwidth increases can be directly attributed to a project, and if those costs are fixed (not based on data traffic which can be an unknown) can be more accurately incorporated into the budget for the project.

Another aspect of the business model needed by this industry to assist it to grow and develop is the ability to collaborate locally, between capital cities and internationally. Therefore there should not be any data charges between two entities on a network because if data traffic charges are applied, in addition to access, they make such collaboration economically unworkable.

e. the skills required to facilitate future growth in these industries and the capacity of the education and training system to meet these demands;

Training establishments

Other submissions will deal with the capacity of the existing education and training systems to develop and grow the skills needed in current and developing film, television and electronic games industries. In particular the efforts of CREATE, in developing frameworks and competency standards for a broad range of skills, in line with and through extensive consultation with the industry itself, go a long way to identifying the requirements, though of course it is up to the training establishments themselves and other Registered Training Providers to deliver such training to the required level.

The high reliance on images – in all training but especially in this industry - once again demands broadband connectivity into regional and rural Australia.

It should also be noted that the Australian Film, Television and Radio School has in recent years embraced the close overlap between traditional film production for conventional distribution channels, and digital production methods, both in conventional formats and for purely electronic presentation formats such as interactive media and the internet.

On-line training

As the cycle of skills training and retraining grows shorter with advancing technology and a more volatile society, the need for improving access to training programs

becomes greater. Both institutions such as TAFE colleges and the AFTRS, and employers needing ongoing training for their staff development, recognise these needs. One significant approach especially in the context of media industries is distance education or on-line education.

While Australia has a pioneering track record in using radio and television delivery for such programs as "School of the Air" to rural and remote locations, today's needs are more complex. The internet and now broadband networks are vital to delivering training programs in a number of ways: for example:-

- Digital effects artists need regular updating in new software and techniques. Work schedules and travelling times, as well the limited number of trainers able to deliver training, both point to on-line training programs over a broadband network as a cost and time effective solution.
- It is difficult if not impossible to deliver film & television training outside capital cities. While some practical hands-on components need in-person presence, there are many opportunities for well-designed training programs delivered on-line. The high reliance on images – in all training but especially in this industry - once again demands broadband connectivity into regional and rural Australia.
- Australia's well-recognised skills base in film & television production makes it a natural provider of educational programs for overseas clients. The country's distance from its potential client base makes broadband-based on-line training an attractive solution. Developing these international connections invariably provides gateways to future relationships including trading opportunities.

f. the effectiveness of the existing linkages between these industries and the capacity of the education and training system to meet these demands;

The need to develop and nurture that range of specialist skills is critical and needs to begin in school. Through its Digital Storytelling program, the Australian Centre for the Moving Image (ACMI) has demonstrated the immense importance of teaching people (without any prior knowledge) in three days how to make a short and powerful film. One example is of a man in the early stages of Alzheimer's who wished to record his memories before they are lost. He has recorded memories for his grandchildren, who were orphaned when their father (his son) died in a road accident. There are powerful social and cultural imperatives for teaching the skills of capturing a story.

The art of storytelling in images should be introduced as early as possible, preferably grade 5 or 6 in school

The art of storytelling in images should be introduced as early as possible, preferably grade 5 or 6 in school, to enable these new important life skills to be instilled. Digital technology will move the control of the creation of digital content to individuals.

g. how Australia's capabilities in these industries, including education and training, can be best leveraged to maximise export and investment opportunities;

International training programs

Australia is recognised for its creative and technical skills internationally, and this is particularly so in the Asian region where hardware, infrastructure and investment capital are sometimes more available than in Australia.

Regional neighbours provide a skills export opportunity. A proportion of creative skills are still analogue skill-sets. Australia has a potential role to play in assisting our regional neighbours build up their digital skill-sets. This can be achieved through online, on the job training by means of co-productions. In order to make this a reality real commercial projects need to be created. This industry operates on such slim margins that there is not time to be taken away from a project to train oneself, let alone train others. However a co-production enables commercial outcomes to be achieved whilst learning new skills.

To achieve this most successfully, Australia's infrastructure must be developed at least to a point where it is not seen as a negative by Asian partners. Furthermore, initiatives such as AFTRS's participation in the on-line Global Film School should be encouraged as ways of using communications technology to deliver training in communications skills, and also to facilitate future co-production relationships.

Games industry exports

In the Interactive Games software development industry the focus is firmly on export. FIBRE has been made aware of the need for international connectivity by the industry peak body and is working to assist with that.

h. whether any changes should be made to existing government support programs to ensure that they are aligned with the future opportunities and trends in these industries.

In this submission FIBRE has stressed, as I believe other submissions will also stress, the project-based nature of this industry. The Government support programs should be targeted to achieve a "flattening" of the peaks and troughs.

This sector is the living embodiment of the sum of the parts being greater than the whole.

The availability of work at a more constant rate will permit:

- the growth of the employment levels within the sector
- the ability to afford to pay more for bandwidth, the cost being spread over a number of projects in an appropriate time scale
- the continued development of skills which will increasingly be required in the whole economy

The changing nature of the digital content creation sector means that more companies are entering the 'project' business for the purposes of creating content for an increasingly wider range of viewing devices. This change in the landscape gives hope that at least the numbers of businesses will increase, however they will still be "small business" and therefore under the radar of the likes of Telstra when the bandwidth needs are discussed. As more work is forthcoming, so the industry can change its project mentality to one of an expectation of a more constant workflow.

The importance of an extensive and affordable broadband network has been argued in this submission and by many others. The need for such

networks is central not just to the film and digital imaging industries but across many other sectors. In reviewing its support for the film industry, government should take note of this universal trend and develop appropriate broadband policies along the lines of road, rail or conventional telephony networks: all sectors use such networks and benefit from them.

There is a great similarity between the Wine industry and the film and TV production and post production sector. Both industries are 'cottage' in style, in widely scattered clusters, have a complex production processes and face "goliaths" in the global marketplace. For the wine industry the French are the chief competitor, for the Film industry it is Hollywood. To taker the analogy further, the wine industry is seen as one entity overseas. There are still some beacons (such as Penfold's and Rosemount), but all "Australian" wine is understood to be of good quality. What was a disconnected cottage or boutique set of wineries has presented to the world wine distribution market a cohesive apparently 'large' entity capable of meeting their needs. That has been achieved by a combination of industry cohesion and Government cohesion.

Government cohesion between Federal and State Governments to promote and support the Australian content creation sector regionally and internationally is essential with the potential for similar outcomes.

This sector is the living embodiment of the sum of the parts being greater than the whole. All levels of Australian government of whatever political persuasion or location should jointly support programs in a cohesive manner to encourage the growth of the sector.

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