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Briefing paper

Digital Entertainment in Hong Kong: driving the demand for broadband?

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Digital Entertainment, home networking and 'digital hubs': driving the demand for broadband?

1. Digital Entertainment in Hong Kong

During his recent budget speech, the Financial Secretary officially pronounced the era of 'positive non-intervention' is to give way to 'pro-active' government in areas of 'market failure'. It remains to be seen how this translates into practice, but government support for the digital entertainment industry could become an early case to study. 'Picking winners' is an unlikely outcome, but public support for shared facilities, for example, post-production studios, is a distinct possibility. But a prior problem is determining the scope and nature of the sector itself, and the debate has just started.

How to define the 'digital entertainment industry'? A better question is how to delineate it, where to draw the boundaries. In a world of convergence this seems like a perverse thing to want to do, but from a policy perspective, or from a business focus, it becomes a matter of practical necessity. To 'define' something is in some sense to capture its essence, but the nature of this beast is that its essence also changes according to perspective. From the consumer point of view, spending dollars to buy an access device – a TV, a PC, a camcorder, a DVD player, etc. - in order to receive entertaining services over-the-air, down a cable, on a personal access network, direct from a disc, etc., is all about the entertainment value of content. From the local industry's viewpoint its all about winning contracts to supply major film and television studios, consumer electronics companies, perhaps toy manufacturers, and as a bread-and-butter business, advertisers. From the network service providers' perspective it's all about accessing customers, signing them up, billing them and keeping them, and that means doing deals with content providers and content aggregators. And from a policy perspective it's about promoting 'the industry' with various support facilities to create jobs locally and an output that sells here and abroad.

What is 'the industry' – and what is the industry 'in Hong Kong' - is therefore now a subject of discussion. Two views in particular have recently been expressed and are reported in Part 4 of this paper. One is the ITBB's discussion paper and the other are the views of Dr Lily Chiang in her position paper and response paper to the ITBB.

The earlier part of this briefing paper is devoted to putting the debate into a wider context. One way to start the process is to conceptualize the value chain involved:

1. Content origination – the author
2. Content creation – the producer
3. Content packaging – the packager
4. Content distribution – the distributor
5. Content services – the service provider
6. Content delivery – the network operator
7. Content consumption – consumer access devices

At each point in the chain there is value – both monetary and cultural, although not necessarily in direct proportion to each other. ('No-one ever went bust under-estimating public taste' as Sam Goldwyn somewhat cynically remarked.) This raises questions about the cultural, ethical and social implications of phenomena such as the success of pornography, the spread of online gambling, the dissemination of hate materials, etc., issues which perhaps attract less objective and well grounded research than they should. In principle they need to be understood along with all others in terms of the dynamics of digital entertainment, the popularity of which is clearly emerging as a driving force.

Digital Entertainment and Postmodernism (an aside)

In one a very real sense everything we consume is a cultural product, or we make it so in the manner of its consumption, and nothing is more true of this than the consumption of the digital entertainment industry's output. The economics of this 'industry' therefore go far beyond simple demand and supply.

The value chain is very carefully nurtured and 'managed' – a kind word for *manipulated* - at all its points.[1] It is an industry in which hype itself is hyped. Bland descriptions of emerging 'life styles' have resonance not because they explain anything, not even because they accurately describe what they purport to reflect –for example, the utterly banal representations of women in the *Sex and the City* TV series, or of the four friends obsessed with trivia in the Seinfeld series, are extraordinarily successful portrayals of completely shallow, one-sided human beings[2] – but because to a greater extent than ever we do live in an age of 'life imitating art'. The displacement of time and space is nothing new. In the novels of Jules Verne and H.G.Wells, or more recently Arthur C. Clarke, art imagines travel to the bottom of the oceans, time warps and space travel before any of these became 'real'. One of Hongkong Telecom's slogans was 'What can be imagined can be achieved', straight from a John Lennon song. This is the vernacular of the digital entertainment industry. Why has it become so all embracing in post-modern society? [3]

One explanation must rest on the fact that as societies become wealthier the dream worlds of yesterday's rich and powerful become the products of the DreamWorks[4] of today. In

[1] One consequence seems to be the inter-penetration (intrusion) of private and public space. Advertisers, for example, are jumping at the opportunity of filling buses and metro-trains and public squares with audio-video screens to grab what they see as a captive audience. Pressure to re-examine the role and scope of privacy protection laws is likely to follow.

[2] Success here implies an excellence of expensive script writing that distinguishes these productions from their paler imitations. Within commodity mass popular culture product differentiation comes at a cost.

[3] Here the term post-modern is used simply to refer to the shift from standardized mass production (modernism) to personalized mass production (post-modernism). Next generation networks are sold to carriers and service providers on the basis they can flexibility deliver personalized services.

[4] The name of Steven Speilberg's film and animation studios.

Orsen Well's film epic *Citizen Kane* the rich media magnet builds his own dream world of a chateau called Xanadu.[5] Today, every shopping mall and every new complex of residential apartments in middle class areas is a kind of Xanadu. But Citizen Kane was more isolated than ever in his castle, and while Xanadu was the fulfillment of dreams it was also a nightmare of ennui.[6]

2. Hyper-Economics leave Hong Kong's DEI as just part of the chain?

So policy makers and investors beware of sweet singing siren voices! This is an industry with its head in the clouds but its feet on the ground, in which the economics sucks as often as not.

Production and Distribution

In reality the economics of the digital entertainment industry changes along the value chain because the chain itself is a concatenation of different industry sectors. Upstream are issues of copyright purchase and production costs. Mid-stream marketing and distribution costs. For example, Terminator 2, staring Arnold Schwarzenegger cost a near record US$93 million twelve years ago, largely due to special effects, but it grossed US$205 million in the US and $309 million internationally. The copyright fees alone for making Terminator 3, due out in 2003, come to US$50 million. By comparison the script writing cost is a mere US$3 million.[7] On top of production costs come marketing and distribution costs. Warner has agreed to pay US$50 million in production costs and about as much again for marketing costs in the US market.[8] For international marketing costs and distribution rights Sony has agreed to pay US$25 million and US$75 million respectively, but the distribution rights of Terminator 3 and its sequel have been separately sold in Japan and Germany for US$20 million. These are huge sums of investment in an industry which has to carefully estimate the risk-reward ratio. In uncertain times, heavy investment in low-risk big box office names is the strategy the major studios pursue as they hope to cover the losses they risk making on movies with less guarantee of success.

One of the problems facing the industry is the constant need to innovate, to differentiate their products which basically share the same formulistic features of 'goodies and baddies', 'love triangles', 'beauty and the beast', etc.[9] Another problem is the limited shelf life of the product, so recouping costs requires a large scale of distribution. Control over distribution channels is therefore a key objective of the majors. For example, the

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[5] From the nineteenth century English poet Samuel Coleridge Taylor's 'Kubla Khan'.

[6] Durkheim's concept of 'ennui' better describes the absolute aimlessness of hedonism than does Marx's concept of 'alienation' with its implications of a negative-positive dialectic. Alienated people may rebel, not aimless people.

[7] Clearly special effects and not the strength of the script will differentiate this film.

[8] 'The main reason is that it didn't want anyone else to acquire the rights and release the movie in competition with the studio's two sequels to "The Matrix", both due in 2003.' *Asian Wall Street Journal*, 12 March 2002, A.7

[9] A good example is the film *Titanic*, the classic love story woven around a very real tragedy, employing a the very latest techniques of computer-generated effects and animation.

Tuesday night discounted cinema tickets in Hong Kong have to be agreed with the distributors and not all agree. Access to cinema theatre chains is a bottleneck comparable to the local loop 'essential facility' in the telecommunications industry.

The scale of production, distribution and marketing costs exclude all but the largest of media players to control these activities. For Hong Kong companies the choices are several. For most, they rely upon bread-and-butter activities such as advertising videos and corporate videos. Some will develop their own niche markets, locally and possibly regionally, for example in educational and training videos, music videos, and maybe some local content for future 3G services or local Pay-TV services. Many would like to develop games for Microsoft, Nintendo, Sony and others, but the threat of copyright piracy is a major constraint. Further up the value chain are contracts from film and television programme makers, especially in areas like animation and special effects. The opportunity to marry a growing interest from the US market in Asian movies and China's entry into the digital entertainment era is clearly substantial. For a much more detailed review, see Dr Chiang's 'Digital Entertainment in Hong Kong.' (http://www.trp.hku.hk/trp_papers.html – March 2002)

Service Provision

Moving further along the chain, entertainment service providers, for example ATV, TVB, iCable, Star TV, PCCW's Now.com, and Yes TV, need content. They incur large investment in upfront costs of networks and periodic upgrades and extensions, but unlike telecommunication service operators who then hope to enjoy to steady revenue stream from traffic, entertainment service providers are in constant need to invest in new programming. TVB leads the pack in terms of in-house production, having years ago hit upon the successful formula of historical drama, which in turn allows TVB to monopolize advertising revenues, setting up a virtuous cycle of costs and revenues. Part of TVB's successful strategy was borne out of TVBI's foray into the wholesale purchase of US films for regional distribution in the 1980s. As an aggregator TVBI was able to reach critical mass for the purchase of movies, documentaries, and other programming that were then sold on to regional television companies otherwise unable to afford them. Added to the cost of buying programmes that have short shelf lives are the costs of marketing and promotion to attract an audience, while the whole edifice hangs upon advertising revenues. These get spread more thinly as a growing number of service providers compete in the market with more channels on offer. Hence the need to broaden the revenue base and at the same time to reduce both audience and subscriber churn rates.[10]

Moving up the value chain is in some senses not an option, given the huge costs involved and the dominance of the media conglomerates, so the alternative is the bundling of products. If entertainment service providers can bundle broadband access to the Web with cable TV or DSL distribution or with digital broadcasting, and with telecommunication services, then customer 'stickiness' increases and potential revenue

[10] Audience churn is between programmes, especially when the adverts come on. Subscriber churn is between networks.

streams increase. PCCW's Now.com is an interesting case of an effort to bundle, but coming from a telecommunications base rather than an entertainment base. Now.com has recently added a .hk to its identify. This represents a sensible strategic retreat from its wilder dot.com days when the world was its oyster. Now.com.hk inherited a video-on-demand strategic investment from Hongkong Telecom and a web-casting, video-streaming inter-active PC strategy from PCCW.[11] Now it is clearly struggling with a choice between a dual mode strategy, but one very much focused on the Chinese language market, or a PC-based strategy. PCCW has the advantage of a strong traditional telecoms revenue base and a dominant position within the residential broadband market to service its dot.com bubble debts and tunnel through to the other side of the multimedia mountain where a brave new world of broadband consumers equipped with the next generation of multi-media access devices awaits to use them – if only the industry can establish standards and achieve interoperability.

Standards

For telecommunication service providers the convergence towards the digital entertainment industry with its lack of standards, or rather its proliferation of standards, is a total headache at best and anathema at worst. But there are some similarities between the two industries, mostly at the level of dominance over essential facilities. In terms of media globalization, the two 'points of market control' have *long* been distribution and standards. Hollywood represents possibly the greatest example of the importance and strength of the former, while the multi-billion dollar battle over high-definition television (HDTV) standards - a battle that has been roaring between the Americans, Europeans and Japanese for more than 15 years, and makes 3G look like a storm in a teacup - is an exemplar of the latter. Moreover, the battle over HDTV has shown that as we move into digital - and the era of convergence - the importance of standards and distribution networks will increase - not decrease.[12] For the operators' viewpoint this already involves questions of DSL vs cable and TV vs PC modes of content delivery.

Games …

Despite the potential of home networking and broadband access to the Internet, the digital entertainment industry is most immediately influenced by the demand for content and games. According to an IDC estimate, 'more than 49 million people in the U.S. played some sort of online computer game… During peak hours – 6 pm to 9 pm – about 100,000 people world-wide are playing Yahoo games.' (*Asian Wall Street Journal*, 11 March 2002, Technology p.6)

'The video-game business is notoriously cyclical. As consoles age, sales of new game software taper off and prices come down. Then new consoles come out, and so do higher-priced new games. The release of PlayStation 2 in March 2000 was the start of the latest

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[11] In its youthful wilder days Pacific Century CyberWorks (PCCW) was looking towards a vertical-selling model.

[12] In a striking parallel with 3G, China is moving to create and promote its own HDTV standard just as Japan looks set to finally falter and throw in the towel. To the Chinese it is important on two counts: minimizing royalty payments (and hence control) to other nations, and as a means of market penetration internationally.

cycle and now the market is heating up with the introduction of Nintendo's GameCube and Microsoft's Xbox.' (*Asian Wall Street Journal*, 26 February 2002, M.1) The business models are fairly straightforward. Three companies dominate the hardware game console side of the games business: Sony with PlayStation2 retailing at around $220, which has sold over 25 million to date, 10 million in the USA and 8 million in Japan; Nintendo with their hand held GameBoy Advance and the GameCube which retails at around $185 and has sold around 2.5 million; and Microsoft with the recently launched Xbox that retails around $260 and which has sold around 2.5 million.[13] The console business is estimated to be worth US$15 billion worldwide, of which the US market absorbs about half. [14]

The Xbox is equipped for online gaming and Sony will enable PlayStation2 later this year, and both companies contract out to hundreds of game designers, but neither console is enabled for games downloading. The reason is simply that Microsoft and Sony wish to control their own products and distribution channels because this is where the profit lies. As the *Financial Times* 4 February 2002 (p.22) put it, 'Microsoft needs exclusive games to improve the economics of Xbox, since console makers traditionally have lost money on hardware and taken profits on software.' One of the causalities of this harsh reality was Sega, who produced Dreamcast which offered dial-up online gaming, but finally withdrew from the console market. But development costs of games are high. Nintendo's new Pikmin game was introduced to replace its previous best sellers, Mario Bros and the Donkey King. 'Nintendo doesn't believe that it can grow the business on past characters", says Peter Main, executive vice-president… "We've got to come up with new ones." Mr Main declines to say exactly how much money Pikmin cost. "Let's just say the game is a very big upfront investment and hence a gamble for us," he says.' (*Asian Wall Street Journal*, 28 January 2002, N.8). Nintendo had sold 250,000 units by mid-January.

… *Advertising*

The economics of the industry involve very large development costs that are recouped on software sales, with bundling of products synchronized with the release of popular movies,[15] and increasingly with intrusive advertising that loads up with the games.[16] The ability to skip the adverts while recording TV programmes using a PVR (personal video

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[13] For figures see *Financial Times*, 4 February 2002, p.22; and the *Asian Wall Street Journal*, 28 January 2002, N.8

[14] See *Asian Wall Street Journal*, 26 February 2002, M.1. South Korea, with its rapid build out of broadband, absorbs US$1 where gaming has taken off. According to the Trade Development Council, one hundred 'games room' sites in 1998 has jumped to near 15,000 by the end of 2001, 'creating some 150,000 new jobs. See www.tdctrade.com/mne/it/020104.htm.

[15] According to the *Asian Wall Street Journal*, 8-10 February 2002, N.9, the 'Harry Potter and the Sorcerer's Stone' game has sold estimated 7 million copies since the film's release.

[16] Game sites are among the 'stickest' on the Web, which opens the door for sites like Microsoft's Zone.com to allow advertisers to bundle their products into the games which are played for free. Bombarding gamers with page ads and pop-up ads is also frequent. According to the *Asian Wall Street Journal* report there are at least 50 major game sites offering a wide range of mostly free games, frequently single-play or simple games like cards, backgammon and scrabble, and scores of smaller ones offering a narrower range of interactive but often more complex games.

recorder) caught the public imagination in the US when a lawsuit was brought against the producer of the ReplayTV PVR, SonicBlue. But the plaintiffs, ABC, CBS and NCB, are playing both ends as they are also investors in ReplayTV along with AOL-Time Warner and Viacom - to spur its development or to stunt it? The two other market leaders are TiVo and Microsoft's UltimateTV,[17] but until PVRs get simpler to use and/or integrated into cable set-top boxes or CPUs the market remains restricted. But as the technology improves…

…Television

> 'All branches of the television industry now realize that personalized TV and on-demand video represent the future of home entertainment… and all sides of the industry need to tailor their programming and advertising to smaller groups of viewers rather than mass audiences. "Appointment viewing and the concept of prime time are gone" says Steve Shannon, vice-president of marketing at SonicBlue. "As the technology becomes prolific it will start to change the economics of the TV industry. People won't watch commercials and will become more selective." More than 80 per cent of the people who own a PVR report that they skip commercials, says Bernoff [*Forrester Research – ed*.] certain that "this will absolutely reduce viewing of commercials nationally." But the flip-side is that advertisers can use the same PVRs to create interactive relationships with consumers around these commercials… "We'll create commercials that are invitations for you to interact with us - not many of you will see the commercials, but the ones who interact with us are worth more."' (*Financial Times*, 4 February 2002, p.22)

… and Music

The Web as a distribution channel and the use of peer-to-peer computing hit the headlines with the Napster case, a classic example of the music majors freaking out at the thought of losing control of the distribution channels. Of course, the lawsuit was wrapped in copyright issues, and underlying those are real fears that the economics of the industry will slip away. While the costs of production (recording) can be high (mostly studio overheads) the costs of reproduction are close to zero and the Web as a distribution channel lowers the cost even further. Marketing costs, however, are substantial, and as far as possibly recording studios pass a share of these onto the artists. The recording artists make their money less from the sales of discs and music videos and more from concert

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[17] 'Microsoft Corp. has disbanded the unit that makes its UltimateTV set-top box… UtlimateTV, a "digital video recorder" that allows people to pause live TV and watch one show while recording another, will be subsumed into a new group overseeing all Microsoft TV services. Those include MSN TV, formerly WebTV, a business Microsoft bought in 1997. That company pioneered the idea of surfing the Web over a television, but never found a broad audience… In Mr Bernoff's *[Forrester Research – ed.]* view, the latest move demonstrates the internal tensions at Microsoft between offering home entertainment through non-PC products, such as set-top boxes, as opposed to Windows-based PCs, traditionally Microsoft's strength. Mr Bernoff thinks the dissolution of the unit may prove that Microsoft's new, PC-centric eHome division is winning that battle. ' (*Asian Wall Street Journal*, 24 January 2001, p.11)

ticket sales. The music sales help promote the concerts, so the recording artists pick up their pay at the end of the bread queue. For this reason, many artists are looking to the Web as a way to by-pass the recording studios, while an army of hackers worldwide awaits their opportunity to crack the encryption codes of discs online.

As with the PVR story, the majors are doing their best to cripple peer-to-peer distribution and to join it. Lawsuits put a stop to Napster while 'digital rights management' systems are being developed to extend control over disc downloads. Two consortia have emerged in recent months. One is Pressplay, an online music JV between Sony (owner of Columbia Studios) and Vivendi Universal (owner of Universal Studios) that will also include music from EMI through Microsoft's MSN Music, Roxio and Yahoo and later through MP3.com and cable TV networks. The other is MusicNet that involves AOL-Time Warner, Bettelsmann Entertainment, EMI and RealNetworks.

Sony meanwhile has launched its NetMD Walkman and computer-connected mini-disc recorder. 'The NetMD is just another step in Sony's overall plan to bring networking to all its devices.' (*South China Morning Post*, 30 January 2002, Tech.8). Apple's *iPod* plays the same role in the home. So access device innovation, including GPRS and 3G, home networking, peering across the Web in parallel with consumer enthusiasm for MDs, VCDs, DVDs and MP3 combine to make this an area of opportunity for the local effects and animation and content industry.

3. Convergence, Digital Entertainment and Trade-Offs

Home Hub or Media Gateways

The concept of a 'Home Hub' or 'Media Gateway' as part of a personal access network (PAN) within the networked home is a recently much vaunted idea. For example, Apple's iLamp adjustable flat screen Macintosh is targetted to become a 'digital hub' within the home connecting devices such as video cameras, PVRs, music players, printers, telephones and Internet. But, as *The Economist* 12 January 2002 (p.6) pointed out currently 'only 3% of American households have all three of an online PC, a digital camera and a handheld computer.' Nevertheless, last March Sony has 'predicted what it calls the "ubiquitous value network" will arrive by 2005.[18] Sony has already formed an alliance with AOL-Time Warner to develop a home-networking platform to deliver entertainment products, but in Japan 'Toshiba and Hitachi are already hot on Sony's heels, adding value to their customer electronics… One product being developed by Matsushita is a refrigerator that records voice messages and sends them to mobile phones. Another is a "vital sign box" that looks like a fax machine and relays health data to a doctor.'(*South China Morning Post*, 16 January 2002, p.Tech.9) Hong Kong's part of Sony's efforts to reach customers in 2001 included entering the broadband ISP market with SO-NET where the company claims a 10 per cent market share.

[18] Two years early according to Dataquest's Ian Keene. 'The integrated home is at least five years out from here. A lot of these smart domestic appliances are likely to stay in the showrooms, at least for the time being.' *South China Morning Post*, 19 February 2002, p.7.

Microsoft is equally into designing platforms for the next generation of home networking devices. Speaking at the Las Vegas Consumer Electronics Show in January, Bill Gates reported on the successful launch of Windows XP and the Xbox games console and 'unveiled two new initiatives known by their internal codenames – Mira,[19] a technology platform for wireless home computing and Freestyle, a hardware and software package for Windows XP-based PCs that promises to turn computers into something more like digital entertainment centres.' (*South China Morning Post*, 9 January 2002). The struggle over platforms, protocols and standards is intense as hardware and software consumer electronics companies fight for market share and to tie the consumer into their product brand.

Proliferation versus Convergence

The proliferation of new technologies, specifications, standards, etc., is nothing new in the history of technological change, just the pace is faster. There are numerous drivers, for example military R&D, public science and technology grants, the competitive pressure to innovate, generic breakthroughs in basic research such as cracking the Genome coding, and so on, and an important part of the process is its unevenness. The eighteenth century cotton gin increased exponentially the ability of the industry to spin cotton, but in doing so created a bottleneck in the weaving process that in turn placed a commercial premium on revolutionizing the loom. This is all well known, but the obvious implication seems lost in the debate about convergence.

Proliferation stands in opposition to convergence. Of course, within one technological paradigm there can be a proliferation of applications and extensions, but proliferation also implies alternative paradigms.[20] An obvious example is wireline versus wireless, and within wireless perhaps radio versus sawss (surface acoustic wave spread spectrum) communications. Another is packet versus circuit switching. Another is TDMA versus FDMA versus CDMA, and so on. The issue is not necessarily which is better, or which will win, but which fits what usage?

There are always trade-offs within engineering and economics. Nothing is best at everything from an engineering perspective, and nothing is the most cost-effective at everything from the economic perspective. Within the networked home and 'hot spot' environments, such as shopping malls, airports, rail stations, universities, hospitals, housing estates, office blocks, there is already a proliferation of technologies to choose from, recognizable by a familiar alphabet soup of acronyms: the 802.11 series, Bluetooth, 10 base-T, HAVi, IEEE 1394, HomePNA and DECT. For example, 802.11b (an Ethernet standard used for WLAN) operates within the same unlicensed frequency band as Bluetooth - the Industrial-Scientific-Medical 2.4GHz band also used by cordless telephones and microwave ovens –, is more expensive than Bluetooth, but also more powerful. More powerful still, offering up to 56 Mbps over 100 metres, is 802.11g which

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[19] 'Mira' was subsequently described as 'a hardware and software platform for computing on televisions and portable tablet-like devices.' *South China Morning Post*, 31 January 2002, B.11.

[20] For reference to the literature on this subject, see Lovelock and Ure (2002) The New Economy: Internet, Telecommunications and Electronic Commerce?' in L. Lievrouw and S. Livingstone (eds) *The Handbook of New Media*, SAGE Publications, pp. 350-386; p. 354 especially.

uses the same modulation technique - Orthogonal-Frequency-Division Multiplexing (OFDM) – as 802.11a which operates in the 5 GHz band. 802.11g operates in the 2.4 GHz band and spectrum management to prevent interference is a problem to be overcome. Additional concerns about the 802.11 series relate to the structure of buildings, for example, the frequencies cannot penetrate thick concrete walls built around lift shafts, and to security issues.[21]

Licensing

This raises the practical commercial problem that designing devices to be networked in the home may be too expensive if these same designs are unsuitable for office or public space use. In addition there are issues associated with licensing and health concerns. OFTA is considering allocating the 2.4 GHz band, currently allocated to low powered devices (LPDs), to cordless telecommunications devices (CTAs). The subtle difference is that LDCs are considered devices not connected to private networks or the PSTN and are exempt from licensing, while CTAs are considered as devices capable of such connection, but are also exempt from licensing. Under this new allocation, operators of commercial WLANS, WLL and other such services will be required to obtain either a PNETS licence or possibly a Class licence. OFTA has also hinted that 802.11 operators will not be licensed for the foreseeable future if they are seen to compete directly with 3G licensed operators.[22]

4. Digital Entertainment Industry in Hong Kong – the way forward?

What is the 'digital entertainment industry'? The question was posed at the inaugural meeting of the Working Group on Digital Entertainment, [23] convened 11 March 2002, in the ITBB's discussion paper 'Scope and Potential of Digital Entertainment in Hong Kong'. The paper, available on the TIF page of the TRP website (see http://www.trp.hku.hk/tif/papers/2002/march/ittb_wgde.pdf) homes in on three aspects of the industry:

1. the use of digital graphics and visual effects in the production of film, videos and television programmes;
2. computer-animation; and
3. games and edu-tainment software (including console games, Internet games, ganes for hand-held devices as well as games and edu-tainment software for personal computers).

Dr Lily Chiang, in her position paper to the Hong Kong Government, 'Digital Entertainment in Hong Kong' (http://www.trp.hku.hk/papers/2002/chiang_update.pdf), and in her subsequent 'Response Paper' to the ITBB's discussion paper, (http://www.trp.hku.hk/tif/papers/2002/march/chiang_pospaper.pdf)considers this vision

[21] See http://www.trp.hku.hk/weblinks/wireless_communities.html for 802.11 websites.
[22] Mainland China has hinted that the spectrum itself will be licensed, and not just service providers. See Chen Ruming http://www.trp.hku.hk/infofile/china/2002/chen_runming.pdf .
[23] The WGDE comes under the Information Infrastructure Advisory Committee (IIAC) of the ITBB.

as too narrow by excluding 'toys and consumer electronics, location based entertainment (e.g., theme parks and entertainment venues), and hybrid forms of entertainment that are a combination (e.g., toys that interact with television, etc.).' ('Response', para 1).

The ITBB paper finds 'The overall picture is that technology *per se* is no longer the limiting factor to the growth of the digital entertainment market. Rather, content and service hold the key… Hong Kong can play the role of a digital multimedia content provider, instead of a developer of new technologies or a manufacturer of hardware, in the regional and global digital entertainment market.' ('Response Paper', para 7.) By contrast, Dr Chiang is reluctant to dismiss new technology development and manufacturing, pointing out that 'Hong Kong also manufactures a wide variety of entertainment related products for export. This includes toys ($85B), audio-visual equipment ($110B), IT products ($88B), and electronics ($435B)' in the year 1999. (Digital Paper, p.2). She goes further. She sees digital entertainment driving technology innovation. 'We believe that for Hong Kong to become a world player in technology innovation, through digital entertainment products is its greatest opportunity.' ('Response', para.3)

While 'Hong Kong is one of the regional leaders in the field of digital effects,' the ITBB sees increasing competition coming from 'Korea, Mainland China, Taiwan, etc. According to major players of the local digital entertainment industry, Hong Kong still has a competitive advantage in creativity, flexibility and international exposure.' (para. 10). Dr Chiang sees part of the answer in using Hong Kong's infrastructure to greater advantage, because 'much of the content, particularly the "new media" still comes from overseas. Video games are from the US and Japan, online games are from Taiwan and Korea, the number of cable channels available to users is less in Hong Kong than other regional countries such as Taiwan and Korea**. No new innovations have been developed locally that leverages this infrastructure.**' ('Response', para 5 – original emphasis).

The ITBB paper sees the need for 'a critical mass of practitioners to sustain a viable and attractive career structure', arguing that a 'self-sustainable local market would be crucial in building up the digital entertainment industry' and proposes the encouragement of local applications, such as 'digital and interactive technologies in various spheres of life such as education, communications, etc.' (para.12) Dr Chiang's papers raise several issues in relation to this. One concerns education and training, one concerns the promotion of 'clustering' or 'critical mass', and one concerns the local-international focus of the industry and the associated problem of piracy.

On education and training, Dr Chiang remarks that 'Many existing programs focus upon training and low-level skills (e.g., usage of software). While these graduates make excellent technicians, they lack the skills to create products that can compete internationally.' ('Digital', p.6). On clustering, Dr Chiang raises the examples of CyberPort and FilmCity. She sees both as 'a good step forward' but adds:

> For CyberPort, however, the remote location and relatively high costs (compared to areas such as Kwun Tong) make it inaccessible to small start-up digital

> entertainment companies. CyberPort, with its facilities and nearby residential housing, is geared more towards providing regional HQ for multinational companies. Access to expensive production equipment, training specialized in emerging digital entertainment technologies, and business development support would make CyberPort more attractive. (‘Response’, para 6.)

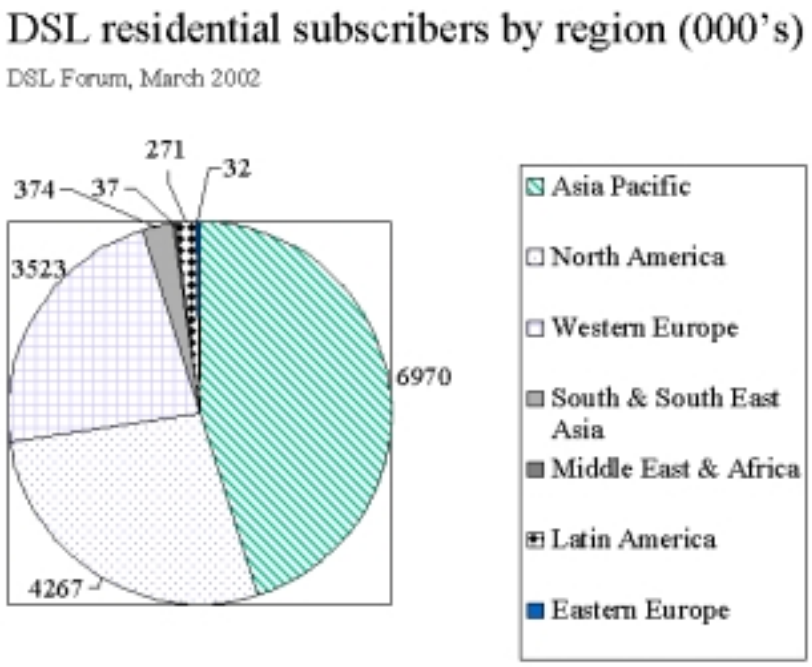
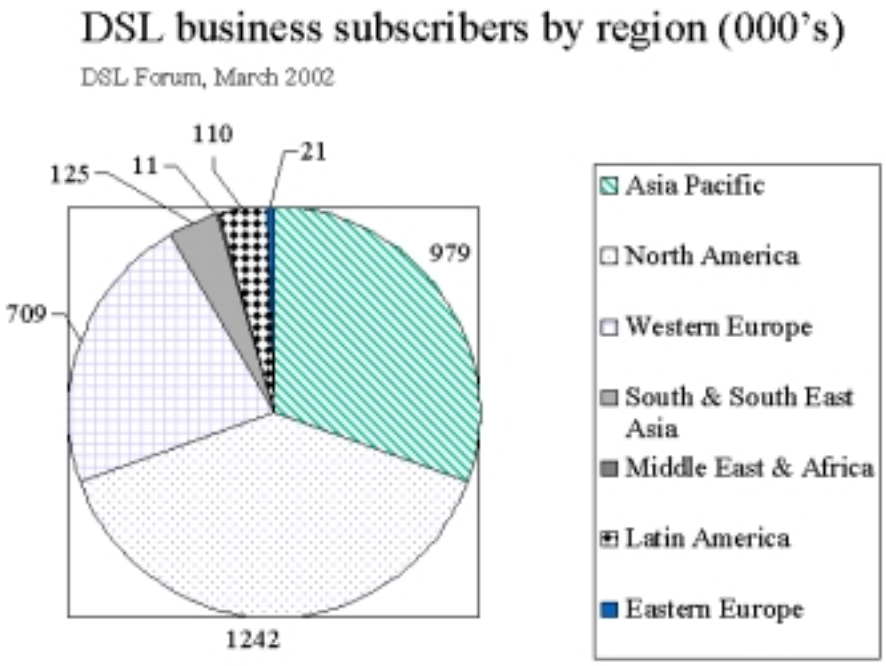
FilmCity she sees as providing the ‘infrastructure for creating productions that compete with Hollywood. However the financial infrastructure (financing) and production talent (digital special effects) require support. Another crucial infrastructure area that Hong Kong lacks is international market research (for toys, film, games, etc.).’ (‘Response’ para 6.) Dr Chiang’s emphasis on the international market arises particularly in relation to IPRs and local piracy problems.

> ‘piracy has made it nearly impossible for local companies that depend solely upon the local market to survive. In addition to combating piracy, the government should also investigate ways in which it can help companies develop alternative revenue streams that are immune to piracy. For example, new opportunities include online-only services (e.g., online games), and products created primarily for the US, Japan, and European markets.’ (‘Response’, para. 11)

5. Conclusions

If anything becomes clear from the three papers, one from ITBB and two from Chiang, it is that the scope of the industry to be considered for possible government support, as well as the potential of the industry, and hence the scope of the support itself, remains highly debatable. It is important therefore that the discussion is based upon a well-informed view of the industry, of its dimensions and potential, and in the first instant this implies the voice or voices of the industry itself are heard. The reasons for public support of this sector should be well grounded, and that does not mean a shopping list of projects. If it is the creative side of the industry that is to be nurtured then government is not the most obvious candidate to play Mother Goose, except perhaps insofar as government itself can initiate more creative thinking in its own policies towards arts, recreation and culture in Hong Kong.

If it is the business and commercial side of the sector, or the technical and human resources side that is the focus, then the papers above are a good starting point for identifying areas to consider. On the supply of skills to the industry there has evidently been substantial progress in recent years, although maybe more on the technical than the creative side. But as in so many other human resource areas in Hong Kong, do the immigration and work visa regulations need review? On the cost of production side, high rents may be a burden – although less so right now - but high value-added output is the justification. The industry will be driven by the latter, not held back by the former. On the issue of financing, the question is really whether special schemes have advantages over existing initiatives for SMEs? And so the issues go on. Because we are the TIF however, we may pick up on one point raised by Dr Chiang, how will Hong Kong leverage its excellent infrastructure to take advantage of the opportunities? That’s a good question.

More and more the issue for economies like Hong Kong is not so much the supply of infrastructure, but how smartly we equip it and use it.

Appendix: Growing broadband access