

IPTV regulation – Challenges of the new era

- *Based on case studies from Europe, South East Asia and the US*

By

Reza Tadayoni, Anders Henten and Knud Erik Skouby

CICT, Denmark

Address: CICT, DTU, Byg 371, 2800 Lyngby, Denmark

Contact e-mail: reza@cict.dtu.dk

Abstract

The development of broadcast technologies is increasingly influenced by the ongoing convergence process, where the whole value chain (the content, service, infrastructure and the end-user terminal industry) are converging and gain from the efficiencies and synergies enabled by the digitalisation, the IP platform and the emergence of new access technologies like optical fibres and mobile / wireless platforms. The market for television services has been subject to radical changes through the convergence of technologies and markets.

The IPTV services offered in the broadband IP networks directly compete with major multi-channel platforms like digital cable TV and digital satellite TV. The IPTV development opens up for new possibilities for broadcasters both in terms of the expansion of the number of services (total removal of scarcity), the possibility for real interactivity and the development of new business models. On the other hand, IPTV is developing in the IP world, which traditionally has not been subject to regulation. Obviously, in this development, a number of problems arise, which are directly connected to the convergence of the regulated media sector and the unregulated Internet platform. The aim of this paper is to analyse the major regulatory issues related to IPTV. The analysis is mainly based on the discussions in Korea, China, Australia and the US. Furthermore, data from Japan, Hongkong and Singapore is included in the analysis.

The paper is partly based on a study done for the ITU.

1. Introduction

The aim of this paper is to analyse the major regulatory parameters related to the development of IPTV. Furthermore, a short overview of traditional broadcast regulation and the development of IPTV technology / market is given. Detailed case studies of IPTV regulation in Korea, China, Australian, and the US are presented to create the basis for identifying the regulatory challenges of IPTV development as broadly as possible. Furthermore, data from Japan, Hongkong and Singapore is included in the analysis.

Rapid development of broadband technologies and infrastructures, especially in South East Asia, signals huge potentials for telecommunication operators to include services beyond voice and Internet connectivity in their provisions. IPTV represents a vital opportunity for the telecommunication operator industry looking to obtain new revenue streams. With the necessary broadband infrastructure in place and availability of new video compression technology, operators have the opportunity to broadcast live TV signals to a television set or a PC via private broadband networks.

Asia-Pacific broadband penetration increases promisingly and there are huge opportunities for IPTV in the Asia-Pacific region. However, the business case and the demand aspects remain challenging, especially given the significant investment costs to launch and scale IPTV. The biggest question, however, is: Is the regulatory framework ready for large scale developments of IPTV? An answer to this question is the main objective of this paper

There are different views about the definition of IPTV. To broadcasters, IPTV (or Broadband Television) is simply “a new emerging platform for distributing digital television channels to home consumers using a TV screen”¹. IPTV is complementary to existing satellite, cable and terrestrial systems, although in some cases it may become a vigorous competitor to them. To the telecom industry, IPTV is synonymous with a new opportunity to take part in an attractive and dynamic media market. Here, the possibilities are not only connected to the sharing of the current media market, but to the fact that the media market increases in accordance with the invention and development of new technologies. IPTV can replace broadcast TV but the potentials for IPTV goes far beyond traditional linear one-way TV distribution and includes tremendous values by enabling interactivity and on-demand services.

Furthermore, there is an important distinction between using IPTV for the delivery of TV through dedicated/managed broadband networks and delivering WEB TV /Internet TV, i.e., TV over the open internet. There are fundamental differences between these two types of services: Delivering WEB TV or Internet TV is a best effort service, with no guaranteed service quality. Rather than being viewed via a TV screen, it is mainly available on personal computers. Its reach is worldwide (as opposed to the local reach of managed IP platforms). With ever-improving video/audio compression, the Internet network throughput and storage devices, Internet TV is becoming a very serious contender², which challenges the traditional TV and IPTV. Presently, however, Internet TV is mainly seen as a complement to mainstream TV broadcast and even to the IPTV services.

The media landscape is changing radically. The first wave of changes in broadcasting was the emergence of digital TV. Now we are witnessing the development of a variety of broadcast services, including different mobile broadcast services (DMB in Korea, DVB-H in Europe and the US, and MediaFLO in the US). Interactivity becomes increasingly important and different on-demand and non-linear services become more and more important in the daily life. The Internet is playing a major role as the platform which provides the possibility for all these developments. One of the last developments here is the user generated content with millions of video clips loaded by users on different personal blogs and Internet sites like Google Video and Youtube to mention a few of them.

IPTV regulation will also deal with traditional broadcast regulation like dealing with *market failures*, *ownership* and *cross-ownership* regulation, issues related to *plurality* and *number of voices* as well as national and *cultural protection* and promotion. Furthermore, the issues related to the removal of *bottleneck*

¹ Franc Kozamernik 2006, 'IPTV-a different Television?', European Broadcasting Union (EBU)

² *ibid*

and *efficient competition*, ban on transmission of *offensive content*, regulation of *levels and types of commercials* and *public interest* issues like *consumer protection* will be a part of IPTV regulation. In this paper, an overview over broadcast regulation in the traditional sense is given.

First an overview of (traditional) broadcast regulation is given; then some important issues related to IPTV technology and market are discussed briefly; later, the IPTV regulation is analysed based on specific case studies. The paper ends with a conclusion and references.

2. Broadcast regulation

Broadcasting emerged from the wireless telegraphy that was organised as state monopoly, first in the developed countries and later almost globally. This historical starting point had tremendous impact on how the service was organised and regulated. There were pure technological reasons for regulation of broadcasting, but content related considerations and economic factors influenced the formation of regulation. The content aspect in the mass communication delivery-structure was important, as practically every citizen, whether child or adult could use the service. This raised concerns about the way broadcasting could influence society as a whole and gave governments incentives to control the medium.

Based on the technological characteristics of broadcasting, the interference and resource scarcity, have by large been main arguments for posing regulation on broadcasting, and considering it as a natural monopoly. In the beginning broadcasting was not regulated, and as illustrated by Riem Hoffmann: “In the beginning there was no regulation on the use of the radio spectrum but the situation got chaotic. There were so many stations and no rules for using the frequencies. Everybody wanted to talk but nobody could hear anybody. This imposed the necessity for some type of regulation to put an end to the ‘chaos in the ether’. The regulation that was imposed had the character of ‘traffic regulation’ but since the frequencies were scarce, the regulatory duty grew into the area in which consideration of common goods³ was used to find or justify criteria for allocation”⁴.

In principal the frequency resources are unlimited. But at different levels of technological development, the portions of the frequency that can be used are different.

Based on economic characteristics of broadcasting, the market failure argument has been the most used argument for legitimizing regulation of broadcasting and deployment of the organizational models for broadcast market. Generally four types of market failure are identified in the literature: 1) Public goods: Non exclusivity and Non-rival consumption, 2) Externalities: Positive and negative externalities, 3) Natural monopoly: economics of scale and scope, 4) Asymmetrical information: which is applicable to any information and entertainment services.

2.1 Public Service Broadcasting

The concept of public service broadcasting originates from the early days of British broadcasting in the 1920s and has continuously been closely related to broadcasting developments in Great Britain in the creation of BBC. The concept, practice and institution of public service broadcasting have thus existed for a good number of decades.

Today, public service broadcasting may be interpreted as a deal between broadcasters and the state, where broadcasters are assigned radio frequencies for the delivery of broadcasting with a public interest dimension. In an Oftel document, “Beyond the Telephone, the Television and the PC – III”⁵, public service broadcasting

³ i.e. “public interest, convenience and necessity”

⁴ Hoffmann R. W.: “Regulating Media”, The Guilford Press, New York and London, 1996

⁵ Oftel: “Beyond the Telephone, the Television and the PC – ”, March 1998, <http://www.oftel.gov.uk/broadcast/dcms398.htm>

is defined in the following way: “At the minimum it involves special rules applied to broadcasters ... in order to influence broadcasters’ portfolio of content and consumers’ access to services”.

Hence the content and access are the two basic elements of public service broadcasting – in contrast to universal service in telecommunications where only access is important. These are the two basic requirements that the state has towards public service broadcasters in exchange for the usage of the limited frequency resources. A third requirement is the financing model.

The content issue in public service broadcasting has both a control (negative) aspect and what is often called positive programming, i.e. requirements for diversity and pluralism in the programming. The keen interest in the content issue stems from the great ideological and political power that broadcasting media have. In Europe, the states wanted to control these powerful media directly, whereas in the US, the majority of licenses were given to commercial companies, and social control has been based on a ‘public trustee’ model. The logic of ‘public trustee’, dictates that private vendors in limited competition can provide better services than can a publicly managed system. Because spectrum is a public property, however, in order to maintain their access to it, broadcasters would need to demonstrate their responsiveness to the “public interest, convenience and necessity” at regular intervals⁶. These two models of organisation of broadcasting are adopted by many other countries, including the countries in the Asia-Pacific , which are the subject of this paper.

There is also an access aspect of public service broadcasting. The people of a nation or a region, in which a public service broadcaster is assigned a licence, must all be able to receive the signals and the services delivered by the broadcaster. It must, therefore, be a free to air signal that does not need any decoding⁷ to be transformed into an understandable picture and/ or sound. Furthermore, the price of the service must be affordable to people in general.

Financing of public service broadcasters has generally come from licenses paid by owners of broadcast receivers (televisions and radios), or are based on the state funding. In the US, public service broadcasters are not state-owned and are not financed by licenses but by grants/ donations and collections. In the US, there is a negotiated deal between public authorities and public broadcasters. Public broadcasters are assigned licenses in exchange for a commitment to broadcast material that is considered to have a public service dimension.

2.2 Regulatory issues related to satellite and cable platforms

Regarding satellite broadcasting, the country of origin can be different from the country where the service is consumed. The broadcaster will place its administration in the countries that give them best opportunities. An example in the Scandinavian countries is TV3, a popular TV channel, which is transmitted from England and conforms to English regulations. In this way TV3 avoids conforming to Scandinavian regulation on advertising, one of the strictest in the EU. Of course if the country of origin is within the Scandinavian countries, for example, in Denmark even, satellite broadcasting targeted to other countries must undergo Danish regulation.

Regarding cable TV, in so far as the cable operator is not involved directly in programming and only retransmits satellite or terrestrial signals, the individual broadcasters must conform to the regulations of the country of origin. If the cable operator is involved in programming, as in regard to the provision of cable-only channels, the national regulation is applied. Among others, because cable TV can be considered as local monopoly, there are detailed rules regarding the services that must be carried within the network.

⁶ Neuman W. R., McKnight L. Solomon R. J.:” The Gordian Knot, Political Gridlock on Information Highway”, the MIT Press, Cambridge, Massachusetts, London, England, 1998

⁷ In digital broadcasting, however, it can be necessary to scramble the signals because of, e.g., copy right issues in terms of spill-over, obvious in satellite network but also valid in terrestrial networks due to spill-over to the neighbouring countries. This is the case of digital terrestrial broadcasting in Sweden where the public service signals are scrambled. The decryption card must then be distributed to the license payers without (or with minimum) cost.

One of the important rules is the “must carry” rule, which requires that certain TV channels are deemed necessary to be distributed in every cable TV network⁸. For example in the majority of European countries, e.g., the national public service and local terrestrial channels are available in all cable TV networks due to the “must carry” rule. Access to the “must carry” channel must further be affordable. This has resulted in a structure where the channels are provided in different packages (bouquet/tire) with one of them (the cheapest one, called the basis package) containing as minimum all “must carry” channels. The other packages (optional packages) contain mostly services from satellite networks.

There are also different rules on how the channels in the optional packages may be selected. For example, the cable operator must ask the users and, by majority voting, select the channels in the optional package. The services beyond the optional package are premium pay TV channels that are offered directly to the end-consumers who subscribe to the service and are not covered by any regulation.

2.3 Regulatory issues related to Digital TV platforms

One of the important outcomes of the digitalisation of broadcasting has been implications on the resource issues, a.o., the expansion of the transmission resources for broadcasting due to more efficient utilisation of available resources. This expansion of available resources can be identified in all infrastructures; however, the implications on the terrestrial networks are the most important as the frequency resources in terrestrial networks are scarce, also in the digital age, and valuable for plenty types of uses.

The way the DVB is standardised makes it necessary to have a multiplex operator function, which organisation in terrestrial networks is a vital regulatory parameter. The allocation of resources can be static or dynamic, and the major organisation forms for the multiplex function are: content-provider (broadcaster)-led, multiplex-led, and service-led.

Another major parameter is allocation of resources for a single HDTV service or for several services (multi-service allocation). The timing for simulcasting of analogue and digital services is also an important parameter, as this will release immense resources for broadcasting or other uses, and removes the burden of operation and maintenance of the analogue systems.

In digital broadcasting, several access parameters are vital, the major parameters are:

Regarding access to infrastructure:

- Infrastructure independency of digital receivers. This is especially applicable when using DVB standards, which have standards for different infrastructures. When the same digital receiver, in the beginning mainly set-top-boxes, can be used in different platforms, the end-user has the most optimal condition in changing between service providers across different platforms.
- Portable and mobile reception. Portable and mobile receptions give valuable flexibility at the end users site. Portable and mobile receptions (especially indoor mobility) are only possible in terrestrial networks, and make demands on the allocation of resources and planning the networks.
- Implementation of return path in terrestrial networks for interactivity purposes.

Regarding access to content:

- Conditional Access (CA). Different CA systems used by the actors in one market impend the end-users' possibility to change between different providers.

⁸ The must carry rule is not applied to the satellite networks but it is interesting that the satellite networks, both in the US and Europe, try to carry the “must carry” signals free of charge and without any regulations in establishment of their business.

- Application Program Interface (API). The market for interactive TV is dominated by different API systems. It is important to have global standard or require interoperability between standards.
- Electronic Program Guide (EPG). EPG is a data service aiming at simplifying navigation between the huge amounts of services available in digital TV platforms. The important task here is to implement an even and non-discriminatory access to all services.
- Free-to-air compatibility of set-top-boxes. To impend tight vertically relations between receiver equipments and the service provision as minimum, it can be necessary that all receiver equipments can access the non-encrypted services.

3. IPTV Technologies

The development from analogue to digital is by far the most fundamental precondition for any other technological changes we have witnessed in recent years. Digitalisation enables the integration of different services in the same network and enables reaping the synergy in the whole value chain of service production, distribution and consumption. Furthermore, digitalisation enables expansion of resources in the access and core networks in a technical and cost efficient way.

The Internet is a main technological change that has revolutionised the communication sector. The Internet is based on the Internet Protocol (IP). Today we are witnessing the development towards deployment of IP in virtually all infrastructures and services.

If we assume that IPTV is the only source of TV in the home, a typical family consumption pattern in the near future could be 1 HD channel, 2 SD channels, 2 VoIP lines, and advanced communication services, yielding an accumulated bandwidth requirement of approximately 20 Mb/s pr. household. Therefore only the advanced broadband networks are capable of offering IPTV services.

3.1 IP based platforms

When video is transported over a digital network, the content is sent in a consecutive flow of packets between the sender and receiver. Irregularities in transmission properties, such as packet loss and variance in packet delay can cause unwanted breaks or decrease perceptual quality of the content. In modern IP networks network access providers can control transmission properties within the boundaries of their own network. In contrast, the public Internet is a “best effort” network where no guarantees can be provided for end-to-end quality of service.

3.1.1 Managed IP networks

There are several advantages in providing IPTV services over managed IP networks. Apart from higher transmission quality level, advanced transmission functionality such as multicasting can reduce network load. Depending on business model applied, the tight relationship between network access providers and customers can be utilised in service provisioning. Furthermore, intellectual property rights can be guarded better when the flow and access to content can be monitored, resulting in more simple Digital Rights Management / Conditional Access systems. Along with tighter participation of the networks access provider in offering IPTV, comes a larger role in the value chain, e.g. through revenue sharing.

3.1.1 Best effort IP, the Internet

Providing IPTV services over the public Internet detaches the service provider completely from influence on data transmission making the service subject to uncontrollable fluctuations in transmission quality. This can partly be compensated through scalable (adaptive) codecs or increased playback buffering at the customer

side. However, if bottleneck throughput is below consumption rate, content can not be watched in real-time. Currently bottlenecks on the public Internet make it unrealistic to offer real-time broadcasting in high quality between countries / continents. Marketing and trust also becomes a larger problem when customers are doing business over the public Internet.

For most network access providers, IPTV traffic over the public Internet is unwanted as it reduces participation in the value chain and causes overload on shared bandwidth due to transmission inefficiency since all streams are sent individually using unicast. However, for content providers that wish to reach a broad customer group without having to make revenue sharing agreements with content aggregators and network access providers, the Internet provides an inexpensive starting point. However, with adaptation and popularity of IPTV, service providers are likely to be forced into closer ties with network access providers.

4. IPTV Market

The past 5-6 years, we witnessed the emergence of a huge amounts of '*on demand*' video services on the Internet, specific 'Internet TV' channels, and '*time shifted*' versions of part of programming from traditional broadcasters. This development has been intensified in the recent years, where the quality of streaming video signals are getting better and approaching the quality levels known from traditional TV services.

Furthermore, in recent years, broadband operators deliver IPTV services in their managed IP networks. Here, it is possible to deliver even better quality than traditional broadcast TV and many broadband operators have plans for the provision of HDTV based in IPTV technology. Also in the managed IP networks a great deal of video content, mainly feature movies, is available in the VoD provisions. The IP-VoD is mainly based on client server architectures, but in the future development P2P can be used as a more efficient content organization architecture.

Market development of IPTV depends to a high degree on the development of broadband market. However, within the broadband infrastructures different business models are emerging.

4.1 Development of Broadband

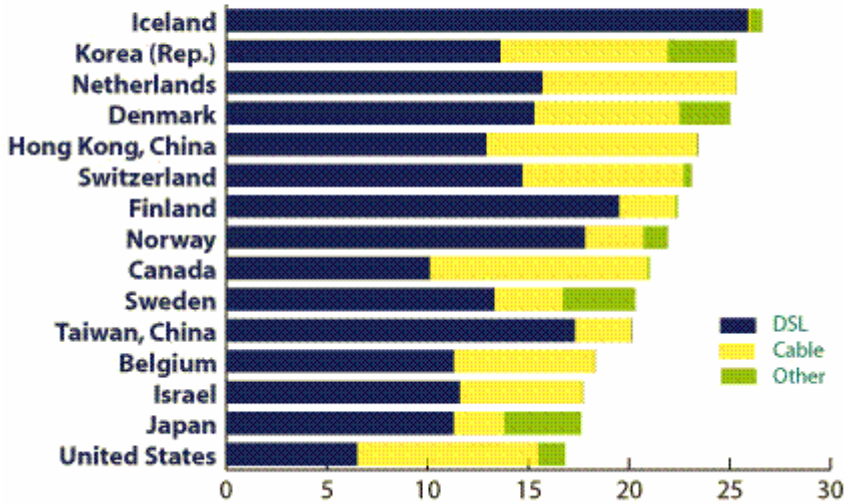
In developed regions especially the US and the South East Asian market have experienced tremendous growth in penetration of broadband. In South Korea about 96% of online users have broadband connectivity⁹. In Korea for example the development has been dominated by DSL technology; however other broadband technologies count for a substantial part of broadband households and growths rate. In the developing countries traditional broadband like DSL will play a minor role and the development of broadband will mainly be influenced by the development of new wireless technologies.

Following figure shows recent statistics from ITU on broadband development in the top 15 broadband economies of the world. As seen in the figure, the Asia-Pacific countries perform relatively well.

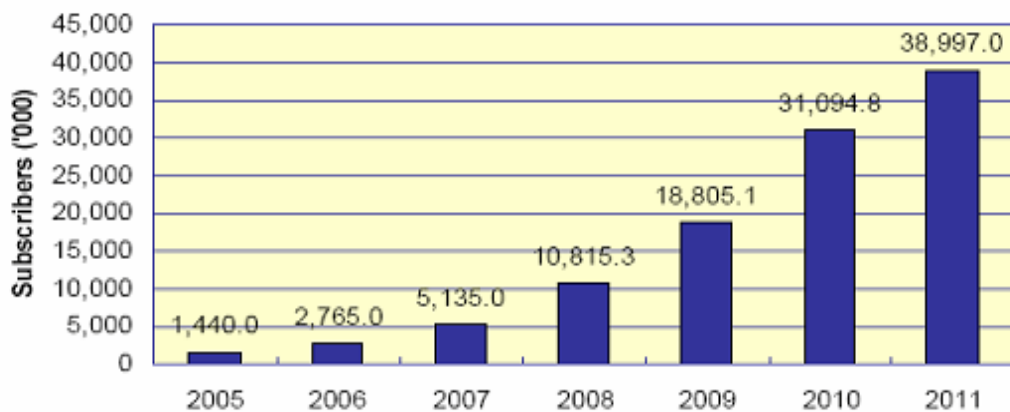
⁹ ITU 2003



Top 15 Broadband Economies
Total penetration (per 100 inhabitants), by technology



As seen from the following figure, different analysis companies forecast a rapid development for IPTV services in the Asia-Pacific countries.



IPTV subscribers in Asia Pasific, Source: In-Stat, 3/06

According to IDC's latest report¹⁰, the number of IPTV subscribers in the APEJ region is expected to increase from 1.2 million subscribers in 2005 to a monumental 29.7 million subscribers in 2010 at an impressive compound annual growth rate (CAGR) of 89%. IDC expects the number of residential broadband subscribers in APEJ to keep growing at a rapid pace, increasing from just over 54 million in 2005 to 106.1 million subscribers by 2010 at a CAGR of 14%.

According to In-Sat, total IPTV revenue in the Asia-Pacific region will reach US\$8.1 billion by 2011.

¹⁰ "Asia/Pacific excluding Japan (APEJ) IPTV Market 2006-2010 Forecast and Analysis" (Doc# AP65C41020602)

4.2 Models of Deployment

Three observations are important in the development of IPTV market: 1) IP platforms, especially broadband platforms, are becoming a competing infrastructure for delivering of TV services. Until now, terrestrial, satellite and cable network have been the main delivery platforms and the main development has been towards digitalisation. 2) IP platforms, due to the inherent interactive component, are changing 'broadcast' in a fundamental way from a broadcast service to an *on demand* service. 3) The content providers can bypass service providers and directly offer services to the end consumers.

Regarding the first aspect, a number of broadband providers simply copy the business model from the multi-channel platforms like cable TV and satellite TV and offer services in different packages: Basic package, optional package, premium package, etc. TV viewers living in areas with no cable infrastructure, like Italy, Spain and Greece, may look at IPTV as a platform for multi channel television services competing with digital satellite platforms and DTT platforms.

The broadband operator simply build up a head-end like cable TV, take feeds from different TV station, generate live stream, form different packages and send them to the consumers. The consumers must have IP set-top boxes that convert the IPTV to regular TV and send it to the TV. This model is used on many broadband platforms, mainly as a part of 'triple play' services in broadband networks. The model is also used on the general Internet, e.g., the Optimal Stream case in Denmark¹¹.

The second aspect, *on demand* transformation, is important because the characteristics of IP platforms are used to add value to broadcast services. If we look at the composition of TV programs, we can see that the majority of programs are not live and are distributed at certain times by the broadcasting station due to planning considerations. In IPTV provision, this type of content can be put on a server so that users can use them when they want. Of course, when the main value of a program is connected to the ability to receive it live, IPTV must use its capability to offer it as live stream.

The third aspect, bypassing the service provider, is not a new thing. In traditional analogue terrestrial broadcasting and Free-To-Air satellite broadcasting, there is no service provider. The programs are sent to the transmitters (satellite or terrestrial) by the broadcasters and received by the users. The content aggregators or *bouquet* providers emerged in the era of multi-channel TV platforms like cable and satellite. To establish a business model, the service/bouquet providers form different packages of TV channels and sell them to the end users. On the IP platforms, it is possible to continue using this model, and as seen above this is done by several broadband providers. It is, however, also possible for the broadcaster to bypass this service provider function and sell the services directly to the users.. Definitely this creates an incentive mismatch/conflict between broadband providers and content providers; a broadband operator does not get any revenue out of the huge traffic generated when the end users directly connect to an IPTV service.

5. IPTV Regulation; case studies

IPTV is a clear materialization of the convergence process. The regulatory challenges related to the IPTV services are a subset of the general convergence process, where the borderline between media, telecom and Information Technologies vanishes at the technological level and result in new requirements to the general regulatory framework.

The market for television services has been subject to radical changes through the convergence of technologies and markets. Traditional TV broadcast services are still regulated on the basis of specific bottleneck, access and content oriented measures. This approach to regulation is no longer appropriate in a world, where there are a huge variety of TV and video services, competing with the traditional Broadcast services. Broadcasters of today are competing with TV broadcast offered through the Internet and other IP networks. Furthermore there are a number of 'On demand' video / audio services that to certain degree are

¹¹ www.optimalstream.dk

comparable with programming within the traditional broadcast market. The IPTV development opens up for new possibilities for broadcasters both in terms of expansion of number of services (total removal of scarcity) and the possibility for real interactivity. On the other hand IPTV is developing in the IP world, which traditionally has not been subject for regulation.

Digitalization of TV was certainly the most radical innovation that TV industry has experienced since introduction of colour TV. It is important to notice that even though digital TV has been a radical changed it has mainly been kept within the broadcast industry consisting of traditional broadcast market players and using traditional broadcast business models. The increasing use of IP networks for transmission of TV and video services has radical impacts on the characteristics of TV and video services and the deployed business models. This in turn requires a more radical approach to the regulatory framework of audiovisual content, for creating a level playing-field for competition, to promote certain audiovisual content, and for protection of minors, and other societal aims.

Traditionally the media, telecom and IT are regulated by different institutions, based on different principles/requirements. In many counties a number of different institutions are in charge of regulation of IPTV services, , e.g., ‘In China and the Chinese Taipei, TV and Telecommunications services have been regulated by different agencies and strictly separated. Both of them have temporarily put IPTV under the umbrella of cable after lengthy and heated debate’¹².

Putting different requirements to IPTV services than for example cable TV services result in unsatisfactory competition situation between services, which are very much comparable. On the other hand putting different requirements on the IP platforms and cable TV platforms creates uneven competition situation between the platform providers. One example related to this is the ‘must carry’ rule that forces the cable TV operators to distribute Public Service or local terrestrial programs in their networks free of charge, where IP platforms are free for such regulations.

In the following, through emirical case studies we will identify the main regulatory issues related to IPTV development.

5.1 Korea

This section gives an overview of IPTV regulation in Korea. The aim is to analyse the regulatory settings and also to identify the regulatory challenges the Korean IPTV sector is facing.

Korea is one of the world’s most advanced broadband markets, where availability and uptake of high-speed DSL broadband are at world-leading levels. The Korean DSL providers have both the technical conditions (very fast access lines) and the motivation to move into IPTV. Hanaro and KT have been trialling IPTV for some times¹³. KT, for example, planned to launch a service called Mega-TV over VDSL in H2 2005. However, there currently exists a serious obstacle to IPTV over DSL or fibre. The Korean regulator, MIC (Ministry of Information and Communications) has ruled that telcos should not launch TV services in the near term, a ruling widely seen as a means to protect Korea’s financially weak cable-TV providers, and the MIC has explicitly stated that it wants telcos’ IP offerings limited to video on-demand¹⁴: ‘Telecommunications operators should not be allowed to offer web TV services until technical and regulatory problems (arising from) the convergence of the telecom and broadcasting sectors are resolved. Before such problems are settled, it is desirable for financially strong telecom operators to provide only on demand video services.’

¹² Chun Lin and Huifei Lin 2006

¹³ Charlie Davies & John Delany 2005, ‘IPTV & VOD market analysis’, Ovum

¹⁴ Charlie Davies & John Delany 2005, ‘IPTV & VOD market analysis’, Ovum

The telecommunication sector in Korea is eager to be a part of development of IPTV services market. Some main reasons why telecommunications wish to enter the TV market were presented by Korea telecom in a recent conference¹⁵:

- To develop new revenue streams to offset the decreasing revenues from traditional fixed-line services. (PSTN and fixed broadband)
- To respond to the competition from cable companies
- To defend and increase the broadband data market share
- To increase the ARPU of broadband services

A number of barriers rooted in the historical organization of broadcast market and the institutional structure of regulation work against opening up the markets. These are discussed in the following.

5.1.1 Regulatory institution

The main issues related to the convergent service are the redesign of regulatory institutions and the reform of regulation in Korea. The current regulatory framework in Korea is vertical, that is, the regulatory institution for broadcasting and telecommunication is separated. The Korean Broadcasting Commission administers the regulations related to the broadcasting industry, and the Ministry of Information and Communication is involved in the regulations of telecommunication industry¹⁶.

The absence of consolidated regulatory authority seems to be a major barrier to convergence and by that to delivery of IPTV services. Regulation of Korean broadcasting and telecom are organized in the following entities¹⁷:

- The Korean Broadcasting Commission: Regulation of content and economic regulation of broadcasting
- The ministry of culture and tourism: The support of Audio-visual service industry protection
- The ministry of Information and Communication:
 - Broadcastion: Allocation of spectrum and License for a radio station
 - Telecom: telecommunication policy
 - Support of telecommunication industry promotion
- Information and Communication Ethics Committee: Regulation of telecommunications content
- Korea Communications commission: Economic regulations of telecoms

Consequently, another main barrier is a confusing regulatory framework; the absence of a consistent framework on new media adds complexity to the Korean media market¹⁸. Because of the absence of a clear concept of convergence in relevant policy and regulation, the convergence service in Korea has faced overlapping regulation in one case and non-regulation in another case.

For example with regards to the DMB, the Korean Broadcasting Commission (KBC) plays an important role in the regulation of the DMB such as in licensing, spectrum, content and other behavioral regulations. Contrary to the trend toward the convergence of the telecommunications and broadcasting, the KBC maintains the legacy regulation such as cross-ownership rules for the sake of public interest. 'Korea seems to regard DMB as a linear extension or an advanced form of traditional broadcasting'¹⁹. As a result,

¹⁵ Minzheong Song 2005, 'Broadband focus shift to revenue growth-New value-added service "IPTV"', PTC 2005

¹⁶ Milim Kim & Minoru Sugaya 2006, 'IPTV in Korea and Japan', PTC'06 Proceedings

¹⁷ Ibid

¹⁸ Dong-Hee Shin 2006, 'Convergence of telecommunications, media and Information Technology, and implications for regulation', Infor, VOL.8 NO. 1 2006, pp 42-56.

¹⁹ Ibid.

‘telecommunications service providers, as well as large business conglomerates, are prohibited from the entrance to the traditionally regarded broadcasting sector’²⁰.

For example DMB presents a dilemma: Does it belong to the telecommunication industry or is it a functional extension of broadcasting?. Dong-Hee Shin gives an analysis of the issue in his recent paper²¹: ‘While semantic distinction about new technology is ongoing, the initial plan of the KBC was to define DMB as an extension of traditional broadcasting, based on the emerging medium’s functionality. As fierce opposition from the telecommunications sector arises, KBC presents a modified definition, DMB as a “special broadcasting” or “new media broadcasting,” which includes DMB and IP-TV. Even with this modified view, it places new technologies within the framework of traditional broadcasting. According to this framework, the KBC requires DMB carriers to observe key broadcasting principles and public interests such as universal service. It may be necessary to consider “diversity issues” in broadcasting services, which inherently observe principles of free speech’.

5.1.2 Definition of Broadcast and telecom

Broadcasting and telecommunication in law are defined as follows in the Broadcasting Act²²: ‘Broadcasting is transmission of the broadcast programs which are planned, produced and scheduled to the public by means of telecommunication facilities via cable, satellite as well as terrestrial radio wave’. The Telecommunications Basic Act gives a definition of telecommunication as ‘transmission or reception of code, words, sound or image through wired, wireless, optic, and other electro-magnetic devices’. In brief, the broadcasting means that a specific sender transmits the scheduled information to the public at large, while the telecommunication means that information is transmitted and received in both directions by the electronic method. IPTV is a convergence service and is difficult to be defined in the present law.

The Korean Broadcasting Commission introduces a concept of “special category broadcasting service” into Broadcasting Act and to regulate a convergence service provider as a broadcasting company. The Commission insists that the convergence services should become a concept of “broadcasting,” based on the “opening telecommunication market” and “competition of the IPTV and cable television.”²³

On the other hand the Ministry of Information and Communication claims that the IPTV should be served as value added network service for the following two reasons: the technical maturity which carries out the IPTV service is prepared, and that the delay of convergent service offer causes the result in declining of national competition in the international telecommunication market. While the Korean Broadcasting Commission insists that the establishment of a regulatory Institution and a regulatory framework should be considered first and that services should be launched later, the Ministry of Information and Communication asserts that the IPTV service should begin first and regulations should be reformed second²⁴.

5.1.3 Protection of Cable TV

The protection of the cable TV industry and investments is identified as one of the barriers for development of a homogeneous framework for IPTV development in Korea. Today the cable operators’ networks are not yet technically capable, and there will be no competitive pressure to change that quickly. Lee June-Young of CJ Cablenet was quoted in March 2005 as saying: ‘We need at least three years of growing our digital services and converting subs from analog... By that stage, we might be ready to compete with IPTV by telco giants like KT.’²⁵

²⁰ Ibid.

²¹ Ibid.

²² Milim Kim & Minoru Sugaya 2006, ‘IPTV in Korea and Japan’, PTC’06 Proceedings

²³ Ibid

²⁴ Milim Kim & Minoru Sugaya 2006, ‘IPTV in Korea and Japan’, PTC’06 Proceedings

²⁵ Charlie Davies & John Delany 2005, ‘IPTV & VOD market analysis’, Ovum

The Korean Broadcasting Commission points out that if a telecommunication company enters into the broadcasting market that offers the IPTV services, there will be a possibility of causing collapse of the cable TV industry²⁶.

The cable TV broadcasters stipulated by the Cable Television Act have been restricted from various regulations on channel organization, ownership restriction, and investment. The Korean Cable TV Association demands the Korean Broadcasting Commission that Broadcasting Law should be applied to the telecommunication companies that wish to start the IPTV service, and that the same regulation as the cable TV should be applied to newcomers. If it is difficult, the association demands to deregulate the cable TV²⁷

The same reasoning and arguments can be applied to the protection of investments regarding the terrestrial digital TV infrastructures.

5.1.4 VoD and Streaming services

The terrestrial broadcasters have for some time carried out the on demand service for TV programs through the Internet. This WEB TV service is commercially successful in Korea. SBS (Seoul Broadcasting System), a commercial broadcaster, has provided the WEB TV service since 1999. MBC (Munhwa Broadcasting Corporation) and KBS (Korean Broadcasting System), both public broadcasters, also have served TV programs through the Internet since 2000²⁸

5.1.5 Retransmission of terrestrial TV

Attractive content is crucial for development of IPTV. 'If the IPTV services start, the re-transmitting of terrestrial television signals through the IPTV will also become a significant issue'²⁹. Due to the same reference, it is important to remember that even though the Korean Broadcasting Commission permitted the re-transmitting of terrestrial television signals through the digital satellite broadcasting, the terrestrial broadcaster refused to provide TV programs via the digital satellite broadcasting.

5.1.6 Vertically integrated industry

Many of the large media company owners are entertainment companies and have vertical integration (i.e. own operations and businesses) across various industries and verticals, such as distribution networks, content production, programming, etc. That means while this is good for their operation, the diversity of opinions and issues would be less well covered. About 75 percent of the programs come from the network in-house productions and about 10 percent come from network owned production companies. The imported programs occupy about 10 percent of the total programs while the independent production companies produce only about 5 percent³⁰. These figures can be compared to those of UK. The high portion of UK programming is delivered by independent and external production (70 percent). In-house production provides 30 percent of programs (independent and external production).

In a comparative analysis³¹ between the UK and Korea Dong He Shon has argued that by and large, the agenda in the UK has been focused on how to change the notion of public interest in convergence era,

²⁶ Milim Kim & Minoru Sugaya 2006, 'IPTV in Korea and Japan', PTC'06 Proceedings

²⁷ Ibid

²⁸ Milim Kim & Minoru Sugaya 2006, 'IPTV in Korea and Japan', PTC'06 Proceedings

²⁹ Ibid

³⁰ Dong-Hee Shin 2006, 'Convergence of telecommunications, media and Information Technology, and implications for regulation', Infor, VOL.8 NO. 1 2006, pp 42-56.

³¹ Ibid

whereas the agenda in Korea seems how to apply a legacy public interest to convergence services. The laws of public interest in Korea have been drawn from a legacy regime, which makes application in a convergence era increasingly difficult. It is further argued that a technology-neutral and provider-neutral perspective can relieve a tension between and among industries and regulators. Technology (provider) neutral approach treats any technology and provider equally. It facilitates development of new services and content over horizontal structure. Regulators' axis is shifted from content to technical bottleneck control. Based on the technology-neutral perspective, Ofcom is more concerned with interoperability between different networks and services than regulatory content itself such as public interest. Public interest provision only remains in Public Service Broadcasting. Of course, the UK's case cannot be directly applied to the Korea case. At least, however, the UK's case can provide Korea with suggestions to Korean regulators calling for their action to resolve the structural problems over convergence.³²

The desire to be a world leader in ICT is one of the strongest forces driving MIC policy³³. There are enough evidences for believing that IPTV takes off in the rest of the world. In this situation MIC will not want Korea to be left behind in this area. For this purpose it is necessary that the bar on telecommunication providers providing IPTV will be at least partially removed, and a new regulatory framework is designed, in the near future.

5.2 China

This section examines the development of IPTV in China in light of the regulatory environment. Prospects for IPTV in China are bright in the sense that China already is a huge and, furthermore, very fast growing market for Internet services. An example of predictions by consultants is that the number of broadband subscribers already by 2007 will bypass the number of broadband subscribers in the US reaching 79 million users and will further reach 139 million users in 2010 (according to the London-based research and consulting group Ovum)³⁴. Another set of figures concerns the number of IPTV users. An analyst from Ovum in Hong Kong estimates that there are 350,000 IPTV subscribers in China presently (October 2006)³⁵. Others have put forward alternative figures partly reflecting the differences in the definitions of IPTV. According to a presentation on 'IPTV in China' made in 2006, the number of IPTV users in China was 1.2 million by the end of 2004 and the prediction is that there will be more than 8 million subscribers by 2008 and that the market worth will reach US\$ 12.5 billion by 2008³⁶. As always, such predictions are rather optimistic but provide a picture of the expectations and potentials.

However, regulations seem to be one of the problems facing IPTV developments in China. In an interview made by INTERFAX-CHINA, the CEO Joe Lin from one of the companies involved in the Shanghai-based trials state that there are three major problems for the IPTV development in China. The first and most important is regulation; the second is bandwidth; and the third is piracy³⁷. The present section focuses on the regulatory aspects but also briefly touches upon the piracy issue, as this is also related to regulations, namely copyright regulations.

³² Ibid

³³ Charlie Davies & John Delany 2005, 'IPTV & VOD market analysis', Ovum

³⁴ See Red Herring: 'Number of broadband users in China expected to exceed those in the U.S. in less than a year', 4 September 2006,

<http://www.redherring.com/Article.aspx?a=18334&hed=China+Broadband+to+Surpass+US>

³⁵ Ken Wieland: 'China's broadband explosion',

http://www.telecommagazine.com/newsglobe/article.asp?HH_ID=AR_2451, 4 October 2006.

³⁶ Marcia Ellis: 'IPTV in China', Paul, Weiss, Rifkind, Wharton & Garrison LLP, PTC'06, slide 2.

³⁷ INTERFAX-CHINA. 'China's IPTV market is the "next step", says Streaming21 CEO',

<http://www.interfax.cn/displayarticle.asp?aid=7140&slug=IPTV>

The development of IPTV in China is situated in the same field of tension between the telecom and the broadcast industry as in other countries. To avoid confusion and turf wars, the Chinese State Council in 1999 issue a decree (#75) to keep the two areas of electronic communications separate and banning convergence. No broadcasting or cable companies have been issued licenses to provide telecom services, and telecom carriers have been strictly forbidden to enter the broadcast market³⁸. However, technological convergence has for a long time put this decree under heavy pressure.

Even though the IPTV development in China thus relates to the same tensions as in other countries created by the convergence between telecom, IT and broadcasting, the situation in China has its proper and specific characteristics. These characteristics relate to the fact that the economy as well as the policy environment in China is centralised with widespread state ownership and political control. The telecom operators in China as well as the broadcasters are state-owned. And, in March 2005 the State Council issued a notice banning private investment in IPTV services. Foreign investment in the area is, thus, not either permitted³⁹. Nevertheless, there are possibilities for tensions between different state owned enterprises and between different state policy and regulatory agencies, central and local.

In order to obtain a license to operate, an IPTV provider must have permission from several different state agencies, first and foremost a permit from the State Administration for Radio, Film and Television (SARFT) but also from the Ministry for Information Industry (MII), as IPTV is not only broadcasting but also a Value Added Service (VAS), which is in the competence area of MII. Furthermore, permits – depending on the types of IPTV service offered – have to be obtained from the Ministry of Communications (MOC) with respect to online games and from the General Administration of Press and Publication (GAPP), which is responsible for the censorship of audio-visual products⁴⁰. IPTV is thus under heavy regulation in China with respect to licenses for operation as well as content regulation.

In the 1999 #75 decree, a division of labour was implemented between SARFT and MII. SARFT has the responsibility for broadcast, radio/TV and cable television, while MII is responsible for telephony and Internet⁴¹. The problem with IPTV is that it falls between the two areas or covers both. However, SARFT has acquired the principal influence. IPTV took off slowly in China already from the very beginning of the century, but in 2004 SARFT established itself as the main state agency in the field with a licensing initiative for IPTV. And, SARFT licenses will only be issued to corporations in the broadcast and media area. These are the only companies eligible for licenses – meaning that telecom operators will have to work in cooperation with broadcast/media corporations to be able to operate in the area.

The implication is that the discussions and battles around the development of IPTV not only takes place between two different state agencies but also between state owned broadcast companies and state owned telecom companies. Furthermore, there is also a local-central dimension in the sense that local authorities do not necessarily accept licenses given by central state agencies. All in all, the situation in China with respect to IPTV regulation is characterised by some degree of regulatory uncertainty including inter-agency rivalry.

An important aspect of this is that SARFT is committed to promoting digital TV (not IPTV) in China. This means that their enthusiasm for IPTV is relatively small, as they are worried that IPTV

³⁸ See, for instance, Chun Liu and Huifei Lin: 'IPTV: Experiences of China and Chinese Taipei', PTC'06 Proceedings.

³⁹ Marcia Ellis, slide 14.

⁴⁰ Ibid., slide 5.

⁴¹ Richard Taylor and Zhang Bin: 'Regulating the "TV" of the future: Comparing the treatment of video as an IP-enabled service in the U.S and China', PTC'06 Proceedings.

may contribute to undermining the prospects for digital TV. This position is in line with their main area of work with an emphasis on traditional film, radio and TV. Furthermore, traditional media have a number of advantages for the authorities with respect to controlling content. The Internet is an open media and IPTV via the Internet will limit the possibilities for controlling and censoring content.

With respect to content, there is another issue, which in many other countries plays a large role in relation to the regulation of IPTV, namely the protection of copyright. However, in China the tradition for upholding copyright is not very strong. This is illustrated in the fact that amongst the three barriers to the development of IPTV mentioned in the beginning of this section, piracy of content is the last one and the least important. However, copyright issues and the protection of copyright by way of technical protection measures such as DRMS (Digital Rights Management Systems) will eventually become an issue in the Chinese IPTV development.

In summary, the regulatory issues affecting the development of IPTV in China are the following, at the moment – while other issues, high on the agenda in a number of other countries such as copyright, interconnection and standards, only later on will play a strong role in China:

- The uncertain regulatory situation with rivalry between policy and regulatory agencies from the broadcasting and telecom areas respectively – and the pursuant struggle between telecom operators and broadcasting and media companies
- The preference of SARFT for traditional broadcast, including digital broadcast
- The heavy licensing system with very few companies receiving licenses
- The fact that only broadcast and media companies are eligible for IPTV licensing
- The ban on private and foreign investment
- And finally, the strict control on content

5.3 Australia

Australia is a country with, presently, relatively low average broadband download speeds but also relatively low prices by international comparison⁴². Although the average speed is, thus, too low for real-time IPTV for many users, the IPTV potentials are good with high penetration rates, when download rates are upgraded. Australia is, furthermore, a country with a ‘British’ style public service broadcasting (PSB) tradition. One of the implications – when examining IPTV developments and regulation – is that regulatory discussions on IPTV tend to be embedded in debates relating to traditional broadcasting and the public interest.

Australia is, furthermore, a country where the convergence between telecom, IT and the media has been discussed and taken into consideration for many years. This is, for instance, reflected in the structure of the regulatory agencies in Australia. The general competition authority (ACCC – Australian Competition and Consumer Commission) has the competence regarding the economic aspects of communications indicating that sector specific forms of regulation should be minimized. However, the technical and content aspects have been dealt with, formerly, in two separate agencies: ABA (Australian Broadcasting Authority – responsible for cultural and social aspects) and ACA (Australian Communications Authority – responsible for the technical aspects, e.g. radio

⁴² Wairuaconsulting: ‘Comparison of OECD Broadband Markets: A comparison of cost and performance data for business and residential broadband products in 26 OECD countries’, a report prepared for InternetNZ, May 2006.

frequencies). In 2005, ABA and ACA were merged into ACMA (Australian Communications and Media Authority). There are thus two agencies regulating communications, ACCC with respect to the economic aspects and ACMA with respect to content and technical aspects. Concerning IPTV, it has hitherto been ACMA, which has been the agency involved in IPTV debates. This illustrates that IPTV is primarily seen as part of the broader discussions on the media future of Australia.

IPTV is not very developed in Australia. Telstra, the incumbent telecom operator, has been involved in an IPTV trial using Microsoft technology. This trial was, however, ended and not expanded into a commercial operation. But the trial documents the interest that telecom operators have in the development of IPTV. There are also a long range of Internet sites on which video content can be found⁴³. This is, however, mostly traditional broadcasting companies offering downloads of some of their programs, i.e. VOD. There is only little real-time Australian television on the Internet. Lately (August 2006), however, it was announced that the first commercial IPTV channel would start operating – Geelong’s Own Television Content (GOTV). Furthermore, Kasenna, a provider of VOD and MPEG-4 ready IPTV, has been chosen to deliver IPTV services for Regional Internet Australia (RIA), providing broadcast IPTV and VOD to about 20,000 high speed Internet subscribers in two regional cities in Northern Queensland⁴⁴.

The public discussions on the regulation of IPTV are related to the media reform package presented in March 2006: ‘Meeting the Challenge: Reforming Australia’s Media in the Digital Age – Discussion paper on Media Reform Options’, issued by the Government of Australia⁴⁵. This includes a broad number of initiatives in the media and communication area. However, the overall setting of the reform package is the development of digital TV and media ownership regulations in Australia.

This, of course, has implications for the manner in which IPTV is discussed. IPTV is just a small ‘corner’, while most of the focus is on the development of digital television. The setting is that digital television has not developed as fast as originally planned in Australia. The digital switch-over date of 2008 is not realistic and the discussion paper of the government proposes to postpone the switch-over year to 2010-12. IPTV is, in this context, seen part of a broader package of ‘new services on other platforms’⁴⁶. There is, currently, a moratorium on the licensing of new commercial broadcast services, and the discussion paper extends this moratorium to what is termed ‘new commercial FTA (Free to Air) broadcast services delivered over platforms other than normal BSB (Broadcasting Services Band) channels, such as wireless, satellite and broadband networks’⁴⁷, where IPTV is included in the broadband networks. This moratorium ends by the end of 2006, and the present legislation is not changed, licenses can be given to these kinds of services.

The overall intension of the package of media reforms is to open the media sector for more and new players. This applies, for instance, with respect to the legislation on cross media ownership where regulations will be relaxed. And, the intended purpose of the initiatives regarding wireless, satellite and broadband networks is also ‘to offer an opportunity for new players to enter the industry and new television-like services to be developed over new and emerging platforms’. There is, however, in the media industry a concern that such an opening will not be obtained by the initiatives of the

⁴³ See, for instance, <http://www.iptv-guide.com/cbc/aus.htm>

⁴⁴ Kasenna: ‘RIA and CombiTel select Kasenna PortalTV platform for Australia’s first MPEG-4 IPTV roll-out’, 27 September 2006.

⁴⁵ Australian Government: ‘Meeting the Challenge: Reforming Australia’s Media in the Digital Age – Discussion paper on Media Reform Options’, March 2006.

⁴⁶ Ibid. p.24.

⁴⁷ Ibid. p.24.

government. This applies, for instance, to Australia's Interactive Media Industry Association (AIMIA).⁴⁸

The problem, as AIMIA sees it, is that 'the Government proposes to legislate to transfer the decision-making power for the allocation of new commercial television licences outside BSB spectrum from ACMA to the government'⁴⁹. And, furthermore: 'In considering applications for such licences after 31 December 2006 the Government will consider whether allocation is in the public interest'⁵⁰. There are two issues here that concern AIMIA. The first thing is that the government will issue the licenses it self and will not leave it to its agency ACMA. This means that the licensing procedure will probably be more politicised than it would in the hands of a regulatory agency. In extension of this, the second issue is that the government openly states this intention of politicising the procedure, as the allocation of licenses will take the 'public interest' into consideration.

In their comments to the government discussion paper, AIMIA states the following:

- 'The proposal to transfer the decision making power for new commercial FTA television services delivered outside the Broadcasting Services Bands and develop a new allocation process does not appear to be consistent with the Government's policy of light touch regulation of new services.
- AIMIA is aware that there are well developed plans to establish IPTV services in Australia using broadband networks as their delivery mechanism. AIMIA would be concerned if these regulatory changes were to create uncertainty in the market and impede investment in and development of IPTV services.
- AIMIA believes that IPTV services would fall outside of the definition of commercial FTA services and would like the Australian Government to clarify its position on this issue'⁵¹.

The issues, presently, discussed in Australia regarding the regulation of IPTV can be summarized in the following points:

- That the development of IPTV is hidden in the broader topic of digital TV. The discussion on IPTV is seen primarily as a traditional broadcasting issue. This can, for instance, be seen in that IPTV broadband broadcasting is conceptualised as a FTA-service.
- The fact that the government intends to hand out licenses itself and does not want to leave it to its regulatory agency in the field, ACMA. The result can be an over-politicised environment for the licensing of IPTV.
- The concern that this environment will not lead to the increased investment in IPTV projects as is the clear intention of the government.

⁴⁸ AIMIA: 'Submission on Meeting the digital challenge: reforming Australia 's media in the digital age', 2006, <http://aimia.i-nex.com.au/i-cms?page=1989>

⁴⁹ Australian Government: Op.cit. p.24.

⁵⁰ Ibid. p.24.

⁵¹ AIMIA: Op.cit.

5.4 USA

Internet TV (IPTV) is well-suited to cater for the following types of content: premium movies on VOD basis, specialized programs with a narrow or dispersed base of users, and innovative programs with interactive and multi-media components. Most of these categories favour producers with large budgets, large home markets, and immediate access to advanced technology. The United States has a stronghold in all of these dimensions. IPTV is may in a marriage between Hollywood and Silicon Valley thus strengthen the American role in global media still further⁵² and therefore is the IPTV development in the US of special interest –even if there yet is no sign of US dominance on the IPTV market⁵³.

In the US as elsewhere a struggle is unfolding with the traditional owners of distribution channels trying to protect their business models. The prohibition on the broadcasting and telecom industries entering each other's businesses was removed by the *Telecommunications Act of 1996* and these companies that own the pipes will protect this territory and fight companies that sell distribution service over the Internet. The big carriers and their affiliated content companies would like consumers to be offered only their choice of "walled garden" for very understandable business reasons, and what they have been lobbying for. Much of the current regulatory discussion in the United States about amending the 1996 Telecommunications Act has been focused on this issue, i.e., how to adapt the current regulatory regime to the arrival of IPTV incl. the license issue for cable operators.

5.4.1 Main Players and Main issues

- **Telecom Carriers:** Upgrade their infrastructure with fiber to offer IPTV – and higher speed Internet; voice as "Triple Play."
- **Cable Operators:** Offers easily enhanced to "Triple Play" through VoIP and Cable Modem; want rules to be applied fairly.
- **Content Providers:** Main concern is piracy
- **FCC:** Seek to encourage growth of IPTV to further competition.
- **U.S. Congress:** Considering laws to revise the entire franchising regime and eliminate local authorization requirement.

Telecom Carriers

The big carriers and their affiliated content companies would like consumers to be offered only their choice of "walled garden" for very understandable business reasons, and that is what they have been lobbying for. To move in the direction of "walled gardens," proprietary networks are aggregating content to which their paid subscribers will have exclusive access. They realize that customers want more choice and interactive content. Many of them are providing on-demand programming.

⁵² Eli Noam,

⁵³ According to The Diffusion Group's (TDG) report 'IPTV Update 2006' the IPTV-market in 2010 will be 14 mio households in Europe and 11 mio in the US (from *Convergence World Issue 5*, September '06, p. 38)

Cable operators

With VoIP and cable modems their networks are ‘born to provide Triple Play; their main concern is the license issue left over from the 1934 Communications Act.

Carriers have claimed that the single biggest obstacle to widespread competition in the video services market is the requirement that a provider obtain an individually negotiated local franchise in each area where it intends to provide service.

Content Providers

The biggest barrier being erected to the online distribution model is access to content.

Movie studios are concerned about online distribution models due to piracy, and need to feel comfort that adequate protections are in place. At the same time, they have been for years seeking ways to directly access their audiences, eliminating the “middleman.”

The “middlemen,” however, are relying on their exclusive grants of rights to fend off the on-line services. In the end, however, the economic incentives for the program and film producers to move online are likely to prove overwhelming.

5.4.2 Revision of the 1996 Act

The Communications Act of 1934 prohibits cable operators from providing cable service in an area without first obtaining a cable franchise from the LFA (Local Franchise Authority).

There are, however, tens of thousands of LFAs around the country and cable operators must obtain consent from the LFA in every local service area. This process is difficult cumbersome and time consuming – as it also includes differing requirements and applications procedures for each LFA. The act further imposes additional requirements on Cable: retransmission consent/must-carry for local stations; non-commercial programming; rate regulation; customer service standards, etc.

The U.S. Congress has started to amend the Telecommunications Act of 1996 primarily to rebalance the interests of the cable and telecom operators over IPTV. The draft legislation (“The Broadband Internet Transmission Services Act”) will create a new category of service, called a “Broadband Internet Transmission Service” or BITS, defined as “a packet switched service that is offered to the public,” regardless of the facilities used, including Internet access service but not circuit switched service. A discussion has started whether the bill’s definition of broadband Internet transmissions services (BITS) can be interpreted to extend regulations to Internet services such as Hotmail, Google Mail, E*Trade or Yahoo.

The draft bill will preempt federal and state officials from regulating the rates, charges, terms, or conditions of BITS. It provides for lessened application of existing cable TV-type laws and requirements to Broadband Video Service (BVS) providers, and no build-out obligations or other controls on programming, e-program-devices and content ownership. BVS providers must pay the equivalent of a franchise fee of up to 5% of gross revenues. The broadcast “retransmission consent” rules are carried over to all BVS providers.

Apparently, a programmer offering content directly to users over the public Internet does not qualify as a Broadband Video Service, meaning that in this case, all the rules about franchise fees, PEG channels, must-carry and so forth, become irrelevant. This is another incentive to move content to the public Internet. In the current draft, companies offering only standard broadband Internet services will be legally bound to ensure that subscribers could access and use all lawful

Internet content and could connect any devices they wish. Broadband video services will not explicitly be held to the same requirements.

5.4.3 New FCC Regulation

The U.S. Federal Communications Commission has also considered IP-enabled video in the context of a “Notice of Proposed Rulemaking on IP-Enabled Services,” from 2004. VoIP was the major factor in generating this Rulemaking, its impact can be much broader. The NPRM fully recognizes the migration of all kinds of formerly separate services to IP, and raises concerns about how this might effect existing public policy concerns and “social” regulation.

The FCC notes that “several observers have urged reliance on a ‘layered’ model to address VoIP and other areas of regulatory concern,” and requests comments on a three-layered model: transmission, protocols and applications. It raises a number of questions, including how to define the layers and how to regulate entities that provide multiple layers. It also asks whether any class of IP-enabled services should be properly classified as “cable service”.

Although much of its attention was been focused on VoIP, the potential scope of the Commission’s approach is broader than that being taken by Congress. In light of the discussion, above, of video over the public Internet, the FCC may be able to avoid the same short-sightedness of the draft Barton-Upton Act and its focus on creating a cable-franchise equivalent for IPTV. The Commission can choose to simply ignore the migration of video to the public Internet (without intermediaries) and create rules to manage a dual system; it can acknowledge the changes that are underway and try to get ahead of them with a new approach to regulation; or it can seek to find means to stifle the growth of video on the public Internet, and place the entire Internet into a cable television model. The scope of the Commission’s authority to act in this area is arguable, and it may want to request a specific grant of powers from Congress. At the same time, it will likely rely on its primary and ancillary jurisdiction to the limit, which will almost automatically result in litigation.

In the U.S., it been the custom that until the market forces realign themselves more favorably, or there are major intervening political considerations, it is unlikely that either Congress or the FCC will be ready to address the clearly emerging reality of video on the public Internet.

5.4.4 Consequences of the new Act and Regulation

The draft Bill is in line with the declared commitment to foster and encourage widespread deployment of advanced communications networks to all American households. President Bush has established a goal of “universal, affordable access for broadband technology by the year 2007” and policymakers from almost all areas of the political spectrum share the aspiration that no community or group of citizens should be without robust broadband network alternatives.

It has, however, been argued that while policymakers have focused on the availability of “broadband” functionality (*e.g.*, faster Web surfing capability) to households, many have failed to grasp that fiber will not be widely deployed solely to provide Internet access. In fact, revenue streams from other types of communications services are critical for the construction of advanced broadband networks.

Ever since the Internet and the World Wide Web developed into a significant business and mass-market phenomenon, there has been a strong concern that a “digital divide” would emerge between rich and poor, or urban and rural, that it will consign the digital “have-nots” to a backward, pre-

Information Age subsistence. Similar concerns about whether certain neighborhoods or groups would be left behind resulted in “build-out” rules that became conditions of granting monopoly cable franchises. But when applied to new entrants, these requirements can be self-defeating and often create barriers to entry for new firms. Build-out requirements are not imposed on new entrants in any other sector of the telecommunications industry. It further has turned out that some local authorities have pushed these requirements very far. When Verizon’s attempted to offer IPTV service in Tampa, Florida, the Regulator reportedly presented Verizon with a \$13M wish list, including funds for an emergency communications network, digital editing equipment, and video cameras to film a math-tutoring program for kids. Reacting to examples like this some States have explored passing laws to limit municipalities’ ability to affect market entry, particularly through concept of State-wide franchising.

In November 2005 FCC released a Notice of Proposed Rulemaking on ways to implement provision that restricts LFAs from unreasonably refusing to grant franchises.

At the same time FCC acknowledged that it is not unreasonable for an LFA to ensure that service is not denied to lower income areas, and require adequate assurance of public access and financial support.

It stands out as quite obvious that there is a clash between State/ local interests and Federal considerations. State and local governments want federal government to preserve state and local property rights and respect this as first priority in relation to, e.g.:

- Consumer protection
- Right of way ownership and management
- Zoning/ local development
- Taxation
- Localism / public access

Federal government wants modernize of the regulatory set-up to enable to enable the potentials related to IP-based system. This includes examining the LFA process as part of broader reforms of telecom and promotion of open access to strengthen competition.

The regulatory dilemma well-known from the general Internet discussion surfaces again in relation to IPTV. The Internet remains largely unregulated as an Information Service. But whenever the Internet is used to provide traditionally regulated services difficult issues arise for regulators. The dilemma has become known as “Walks like a duck, quacks like a duck” problem. A similar problem arises in relation to IPTV: If the Internet is used to transport TV shall traditional cable TV and other regulations then apply? The 1934 Act states that a facility of a common carrier “shall be considered a cable system . . . to the extent such facility is used in the transmission of video programming directly to subscribers.”

It is thus very obvious that new services being offering through the shift to IP technology create unique challenges for law makers; but it not yet clear how these challenges will be met. In October

2006, The Federal Communications Commission announced that it will conduct an assessment of competition in the video market, to include the impact of Internet-based video and IPTV⁵⁴.

This step was welcomed by the telecom industry: “In reviewing the status of competition in the video market, the Commission will clearly see that the existing, out-dated franchising system is an unnecessary barrier to entry for service providers seeking to offer consumers options to cable. We appreciate the Commission’s attention to this important issue and we will continue to strongly advocate for necessary reforms to bring more competition, innovative services and lower prices to the video market.”⁵⁵

In2TV. Time Warner Inc.’s AOL division has launched a free Internet television service in 2006. The new service, called In2TV let fans watch full episodes from more than 100 old television series. It will be free, supported by advertising. Programs on In2TV will have one to two minutes of commercials for each half-hour episode, compared with eight minutes in a standard broadcast. For AOL, the In2TV deal is part of a broad strategy to create a range of video offerings to attract people to its free AOL.com portal. Warner, the largest TV syndicator, wants to use the Internet to reach viewers directly rather than depend on the whims of cable networks and local TV stations. AOL will offer a version of the service meant to be watched on a television set connected to a

Windows Media Center PC, and it is exploring a similar arrangement to link the Internet programming to television through TiVo video recorders. For those who want to watch on a big screen, AOL is introducing optional technology it says will produce a DVD-quality picture.

Slingbox. Slingbox currently holds pride of place in a new category of media called “Placeshifting”. Sling Media’s (<http://www.slingmedia.com/>) Slingbox Personal Broadcaster digitizes the programming from a cable or satellite box and streams it -- in real time -- to a remote PC. As long as the user can find a broadband wire or Wi-Fi hot spot, he or she can watch home TV channels live from anywhere in the world. Also in this category are the Orb (<http://www.orb.com/>) software package and Sony’s Location-free TV (Sony LF-x1). The Sony enables live video transmission to the PSP (Play Station Portable), while Orb is free but requires a host PC with a TV tuner card to stream user-selected television programs.

In addition, start-ups like Akimbo Systems (<http://www.akimbo.com/whatis.html/>) are providing ways that producers can upload their videos and even share in the revenue when TV viewers buy the content. Akimbo was the first company to deliver DVDquality video-on-demand to any television via a broadband-Internet connection.

Yahoo! and Google. Yahoo! Inc. and Google Inc. are planning to bypass traditional media outlets by linking computer users with TV shows online, striking partnerships with programmer and creating content. Yahoo and TiVo are collaborating to allow individuals to view Yahoo TV content via TiVo. Navigate a menu on a TiVo box and you will be able to view Internet content just as you would cable or broadcast TV. Additionally, this partnership will allow users to TiVo programming remotely via the Yahoo website. TiVo has also recently announced plans to allow unlimited free TV-show downloads to iPods (<http://online.wsj.com/article/SB113253403196102661.html/>). Google is also getting into the Internet TV business. Google has also launched a new Web-based video search service which allows people to use keywords to search the company’s indexed database of video from content providers that have uploaded video.

Theatrical Film Rental – Netflix, which currently operates an on-line DVD rental business using physical delivery and return of DVDs, is moving towards becoming a destination Web site offering a mix of content: free, ad-supported, premium pay-per-view and subscription. With many Americans upgrading to big-screen, high-definition TVs, Netflix is arguing they won’t be watching on computer monitors, which is part of the rationale behind a deal between Netflix and TiVo, to jointly develop technology.

IPTV in USA: Source: List from Richard Taylor and Zhang Bin: Regulating the “TV” of the Future: Comparing the Treatment of Video as an IP-enabled Service in the U.S. and China. PTC’06, Proceedings

⁵⁴ http://telephonyonline.com/broadband/regulatory/fcc_video_inquiry_101206/

⁵⁵ Walter McCormick, president and CEO of USTelecom;

http://telephonyonline.com/broadband/regulatory/fcc_video_inquiry_101206

6. A sample of other Asia pacific countries

<p>Japan</p>	<p>Japan has a moderately developed pay-TV market and IPTV was launched last year. However, uptake has been fairly modest so far. For example, Softbank had 10,000 subscribers for its TV-over-DSL service in October 2004, which is only 0.2% of its DSL subscriber base. NTT is barred by regulation from providing broadcast TV over DSL. We have no reason to assume that this will change over the next five years. The parameter for availability of TV over DSL is set on the basis that it will never be available to NTT's DSL customers. According to iDate in February 2005, NTT has 18% of the retail DSL market in Japan.</p> <p>Some regulatory issues identified by Ovum are:</p> <ul style="list-style-type: none"> • The government aims to achieve digital broadcast penetration of 47 million homes and 100 million TV units by July 2011. Analogue broadcasts are to be closed down on 24 July 2011. • The Japanese government does not subsidise set-top boxes and there are no plans to do so. • Regulatory structure that requires pay-TV platforms to be merely carriers of programming and prevents packaging. All services must be offered à la carte. • DTT providers are required to provide at least 50% of their programming in HDTV format. • Telcos are currently barred from providing TV services over copper telephone lines. Video on-demand is permitted, however. Fibre access is not covered by this regulation.
<p>Hong Kong</p>	<p>In terms of penetration of its broadband subscribers, PCCW is the world's leading provider of IPTV over DSL. By the end of 2004, it had over 400,000 subscribers (Today in October 2006, PCCW has 650,000 active customers and a presence in over 25% of homes in Hong Kong). This is not only the majority of PCCW's DSL subscribers; it is also a substantial percentage of Hong Kong's estimated 2.2 million pay-TV households. Thus, TV over DSL is already starting to move towards saturation for PCCW. PCCW has about 75% of the DSL broadband market in Hong Kong.</p> <p>With among the highest broadband penetration rates in the world, around 69% of all the households at the end of 2005, Hong Kong has proved to be an extremely competitive market, where broadband service providers have had to differentiate themselves from competitors by rolling out more services to their subscribers. In this scenario, IPTV has been very well received by Hong Kong residents. Some of the reasons for the success have been the focus on an a la carte menu, Chinese-language content, competitive pricing, and bundling with data and voice services. Paul BERRIMAN (Head of Strategic Market Development, PCCW Limited) : 'NOW TV (PCCW's IPTV services) has been in service for over 3 years now and whilst most operators still debate technology platforms, PCCW has been able to take the platform for granted and concentrate on content and interactive transactional services for revenue growth and telco business transformation.'</p>
<p>Singapore</p>	<p>Singapore enjoys one of the highest residential broadband penetration rates in the region at 44.7% at the end of 2005. IPTV is a new phenomenon in the Singapore market with limited uptake in 2005. As more operators are expected to roll out IPTV services in Singapore, IDC forecasts the number of IPTV subscribers in Singapore to grow from about 40,000 in 2005 to 218,000 by 2010 at a CAGR of 39%.</p>

Source: Mainly based on data from IDC and OVUM

7. IPTV regulatory parameters

As seen in the case studies, a range of different regulatory issues are important for the creation of an efficient IPTV market. The major issues from the case studies are listed in the following:

- Definition issues. It is important to agree on some fundamental definition issues like the characteristics related to the linear and non-linear services.
- Institutional barriers and the fragmented regulatory situation. The institutional setting is identified as one of the main barriers for the creation of an efficient framework for the development of IPTV services.
- Licensing, authorisation, registration. Different countries use different approaches creating varying levels of barriers.
- Content related issues. Issues like cultural, language, and industry protection are as important in the IPTV world as in other technology areas.
- Organisation of services. As cable TV has been treated as a local monopoly, there have been strict rules on the organisation of services. This may change and we may see a development from tiers/packages to 'à la carte'.
- Standardisation and interoperability. A number of different standards are available for IPTV. Here, there is a huge challenge for the industry and regulation to create open standards as well as creating interoperability between different standards.
- Rights issues and DRM. The rights issues become increasingly important when we move to the IP platforms.
- Retransmission of terrestrial signals. The success of IPTV depends on the content. Here, retransmission of terrestrial content will play a major role.
- Must carry. Cable operators will require level playing field, when it comes to regulation and must carry rules are important issues.
- Set-Top-Boxes. By developing multi platform set-top-boxes, the industry can contribute to the creation of more choices and better utilisation of resources.
- QoS. QoS is mainly a parameter that will be handled in the managed IP network.

Furthermore, a ban on foreign investments and the strict control of content are identified specifically in the Chinese market.

8. Conclusion

The development of IPTV is closely intertwined with the development of residential broadband. While, previously, there was a gap between the requirements of IPTV and the capabilities of access networks and services, today, this gap has been bridged through the advancements in coding and transmission, Digital Rights Management etc. Despite a technological solution to most of the issues confronting IPTV, the lack of an overall standardisation framework has diversified the implementation efforts, which to date are mostly built on proprietary solutions. With network access providers investing in new or upgraded infrastructure platform, they are likely to demand a larger share of the value added, forcing service / content providers into revenue sharing cooperation through service differentiation.

The penetration and the development of broadband access is a major policy and business issue in many parts of the world. Different (and new) market players are taking part in the development of broadband using a variety of competitive and complementary technologies. TV and Video services will be major services in the broadband networks. We see two main models of deployment of TV over broadband: 1) The traditional

distributive model known from other multi channel distribution platforms like cable TV and satellite TV, and 2) A new model, where TV broadcast evolves towards a combination of “linear” and “non-linear” / “on demand” provision in the IP networks with strong components of interactivity and with new business models, where the TV program provider directly accesses the end consumers and bypasses the “content aggregator”/ “Bouquet provider”.

The regulatory frame work of IPTV consists of a complex combination of traditional TV regulatory measures, access regulations, and regulation of resource organisation in the IP platforms. An important aspect is that the TV provided on the IP networks can be similar to the TV provided on any other platform. It is important that the same regulatory framework is applied to both. Another aspect is that the TV / video services offered in the IP networks can have radically new characteristics based on the interactivity component that is inherent in the IP platform. The development moves from ‘broadcast’ to ‘on demand’, from ‘push’ to ‘pull’, from somebody else deciding the timing of consumption / ‘scheduling’ to the end-consumer deciding on the scheduling of consumption. These new characteristics may call for new regulatory frameworks.

The ‘must carry’ rule is applied to some infrastructures offering linear audiovisual content like the cable TV networks. Some broadband networks are capable of offering exactly the same services as cable TV and in reality they copy the business model of the cable TV, i.e., the organization of the content in different tiers (basic, optional, premium, pay preview...). In the long run, it will be difficult to maintain different rules for different infrastructures, as it definitely contradicts the technology neutrality regime and creates uneven competition conditions. There can, however, be other reasons for maintaining lighter regulation for a certain period of time when it comes to the IP broadband networks in order to promote new technologies and services.

The interoperability is another key question. There are a number of different standards for IPTV provisions (like Microsoft or DVB based standards). These standards are not interoperable and can, therefore, create ‘lock in’ situations, where the consumer will have difficulties leaving a service provider, as this requires change of hardware and getting used to new user interfaces etc. The interoperability problems are well known from the digital TV market, where different systems for Conditional Access (CA) and Application Program Interfaces (API) are available on the market. In digital TV, some solutions to the problems were introduced partly through standardization and partly by requirements for interoperability on the set-top-boxes.

Another aspect relates to the rights issues of the content owners. The content owners are concerned about the IP platforms’ capabilities of redistribution of content. The technical solution to this problem is implementing DRM systems.

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