International Telecommunication Union

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Digital broadcasting and online content delivery

Work in progress, for discussion purposes

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1 DIGITAL BROADCASTING AND ONLINE CONTENT DELIVERY

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1. Introduction

Convergence has been talked about in the telecommunications environment for over 20 years. It is now very real.

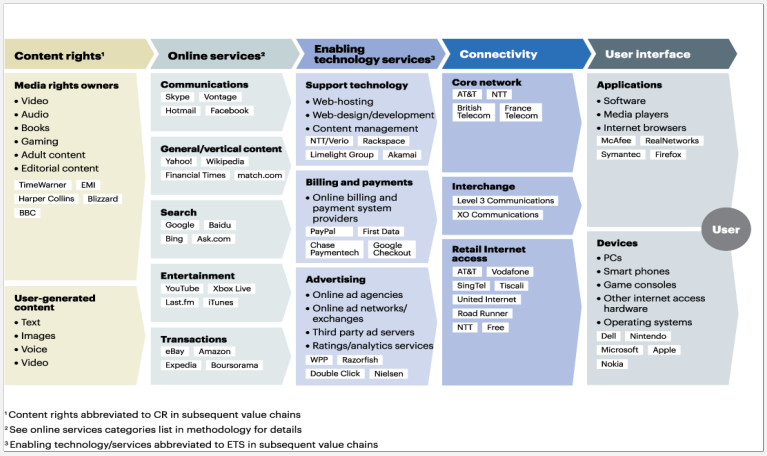
There is no universal definition of convergence, but it is generally understood to mean the use of different types of infrastructure or platform to deliver the same service (e.g. the delivery of content over terrestrial TV, cable, satellite and the Internet) or the delivery of a range of services by a single player, facilitated by regulation and digital delivery, (e.g. triple- or quadruple play offers giving consumers access to voice, data and TV over the same platform or by the same player). This technical convergence, and the digital revolution in delivery of content, has led to the introduction of a range of new technologies and services.

From a commercial perspective, convergence has resulted in an increased range of players seeking to monetise and protect their position in the delivery chain that produces and delivers content to end users and to retain their relationship with the end user. That customer interface is increasingly critical as the value of personal data and awareness of consumer habits becomes a value in its own right and single players increasingly offer an increasing range of services in their own right.

A key feature of the converged environment is the increased significance of the Internet in delivering content to end users. Figure 1 below illustrates the main parts of the Internet value chain. This is taken from a report published in 2010 by AT Kearney [1]:

[1] AT Kearney, Internet Value Chain Economics: Gaining a deeper understanding of the Internet economy, http://www.atkearney.com/documents/10192/a70da6a8-aa98-4e43-999b-3a83a58d1c80.

Figure 1: Internet value chain



Source: A.T. Kearney analysis

The main parts of the Internet value chain can be broken down as follows:

- content rights: this covers both content provided on a commercial basis (e.g. music, video, books, news, games) and, increasingly, user-generated content (e.g. YouTube);
- services - also referred to as 'over the top' (OTT) - services: these are services provided over the Internet, ranging from communications services (e.g. email and VoIP) and search services (e.g. Google) to entertainment services (e.g. video on demand and gaming) and e-commerce (e.g. Amazon and eBay).
- enabling technology services: this includes supporting technology (e.g. web-hosting), billing (e.g. PayPal) and advertising.
- connectivity: this covers both fixed and wireless network providers and Internet service providers (ISPs) and increasingly content delivery network services (CDNs); and
- user interfaces: this includes the full range of devices now used to access the Internet (e.g. PCs, smart phones and smart TVs), as well as applications.

Increasingly, the boundaries between the different parts of the value chain are becoming blurred. In particular, there is increasing consolidation, with providers, such as Google, moving into multiple parts of the value chain (see further Section 1, 2 below). New means of delivering content are being used (see further Section 1.3 below) and new business models are emerging, with online advertising now a key source of revenue (see further Section 3 below).

This consolidation across the elements of the value chain is emphasised by just how much has changed in the last couple of years in terms of cross ownership, and the battle between the telecoms operators and the over the top players.

The role of regulation in overseeing this new converged marketplace also continues to evolve. Telecommunications and broadcasting markets were traditionally viewed as separate markets with corresponding, often divergent, regulatory regimes being developed accordingly. However, as these markets converge, it has become clear that existing approaches to regulation may not be appropriate.

The different ways in which content is now being delivered and accessed and the different business models emerging for delivering content to end users also raise questions about the role and scope of regulation in this area. An example is the increased importance of online advertising as a source of revenue (described in Section 3 below). This raises issues for regulators in terms of market power, data protection and consumer protection which are becoming as critical as traditional regulatory models tied to market power on network access. Whether and how this area should be regulated is one of a range of issues now facing regulators.

There have also been changes in the structure and powers of regulators. In some jurisdictions, for example in Malaysia and in the United Kingdom, a converged system of regulation has been created with the regulator having a role in regulating both telecommunications networks and content.

This paper will attempt to breakdown the issues associated with convergence in an effort to improve understanding of the changing nature of digital broadcasting and online content delivery services.

In particular, this paper will:

- provide an overview of the different types of digital content being delivered online by telecommunications operator, broadcasters, OTT players and ISPs in a multi-platform environment;
- examine the technologies and applications involved, the devices needed and their usage, including identifying who the main players are;
- consider what new business models and new revenue schemes are emerging, including looking at the role of online advertising in generating revenues; and
- examine what kind of regulation is needed in the converged environment: who regulates or should regulate these services, what the main roadblocks are that regulators face and how to address them.

1.1 Digital broadcasting and online content delivery

1.1.1 Convergence in the broadcast and delivery of content

Traditionally, telecommunications and broadcasting were distinct markets. Telecoms network operators delivered voice and data services over their networks and separate broadcasting platforms existed for the delivery of content. Increasingly, these boundaries have become blurred.

Technical convergence means that content is now delivered over multiple platforms and to and from a range of different devices. Telecoms network operators have also entered the broadcasting space and are now delivering content to their customers, often as part of a bundle of services with other traditional telecoms services. User-generated content has also exploded and companies active in this space have become acquisition targets, for example YouTube (owned by Google), Flickr (owned by Yahoo) and Tumblr (sale to Yahoo announced on 20 May 2013[2]).

[2] http://www.reuters.com/article/2013/05/20/us-tumblr-yahoo-idUSBRE94I0C120130520

1.2 The players in a converged market

There is an increased diversity of players in the new converged market, ranging from telecoms network owners, cable operators, broadcast network owners, content distribution network owners, equipment vendors and device manufacturers to content owners, online content aggregators, application designers, retail communications players , merchants, application players, messaging operators and operating system providers.

Increasingly, market players are involved at multiple levels in the value chain and across multiple jurisdictions. Convergence has also seen a number of global brands, such as Microsoft, Apple, Amazon and Google, becoming active across various parts of the Internet value chain outlined in Figure 1 above. These developments have led to a blurring of the boundaries between the different areas within the value chain.

Google, in particular, has been at the forefront of this development. From being a search engine, Google's activities have expanded significantly in scope and now range from device manufacture, operating systems and cloud storage to email, maps, content distribution and online advertising.

Google's rapid expansion has led to increased scrutiny of its activities by data protection and privacy regulators and competition authorities in a number of countries, including the US, EU, South Korea, Brazil, Argentina and India[3].

The increase in the value of the data being shared has also led to increased focus on the data protection issues in the business models of other companies such as Faceobook. For example, the Irish Data Protection Commissioner conducted a detailed audit of Facebook's activities in 2011 and made various recommendations to Facebook to change certain aspects of its service, including providing users with greater transparency and control over how their data is used[4].

Telecommunications providers continue to develop their offerings outside of pure delivery networks and attempt to diversify into other areas. This includes the development of Telefonica digital, British Telecom's ventures into sport content and on-line television content via YouView, ATT and Verizon's mulitple play offerings and a myriad of others.

1.3 The evolution of content delivery

The converged content market is characterised by the multi-platform environment through which content is now available to end users.

A distinction is sometimes drawn between the broadcast or delivery of offline content (e.g. content delivered via traditional broadcasting platforms) and online content (e.g. video on demand).

Online content is accessible through over-the-top (OTT) services provided over the Internet or through new devices which integrate Internet access into the TV and/or set-top box, e.g. so-called smart or connected TVs and increasingly via mobile devices.

There are new aggregation models developing around smart TV providers who offer and are judged on the online content they offer via applications on their television sets. They face challenges from the tablet and personal computer providers seeking to deploy home hub devices in the living rooms of consumers. Given the relative lack of differentiation between these devices, it is challenging to predict what the outcome of this will be and who will

[3] http://www.fairsearch.org/wp-content/uploads/2012/06/global-scrutiny.pdf.

[4] http://www.dataprotection.ie/docs/Facebook-Ireland-Audit-Report-December-2011/1187.htm and http://www.dataprotection.ie/documents/press/Facebook_Ireland_Audit_Review_Report_21_Sept_2012.pdf

emerge the victors. Regulators who are focused on content issues will have to determine how best to address the multi-jurisdictional challenge that the various internet platforms address. This includes the content issues and addressing issues over content, eg pornography, child protection and hate speech and moral protection but also the key matters of ensuring that whatever models develop are sufficient to encourage investment in the underlying networks which will carry the relevant content. This paper will not focus on the net neutrality issues in detail and the investment issues on next generation networks although this is covered in substantial detail elsewhere. However it is clear that there has been an explosion in data requirements over networks. This has resulted in a number of issues; satellite delivey platforms increasingly needing broadband functionlality to deliver content; mobile operators seeking to offload at the nearest point possible to fixed and converging with fixed network providers (eg Vodafone and Cable and Wireless) and the development of alternate delivery platforms to speed content delivery and relieve bottlenecks.

Content delivery networks

The increase in OTT services has led to a huge increase in IP video traffic flowing through network infrastructures. In 2012, internet video represented 60% of all consumer internet traffic globally and is forecast to increase to 73% by 2017[5].

To address the growing demand for bandwidth, network operators are increasingly turning to content delivery networks (CDNs).

CDNs bridge the gap between traditional closed pay TV infrastructures and the multiservice, multiprotocol, multi-endpoint service capability that network operators need to deliver IP video services to their subscribers. The key groups currently using CDNs can be divided into three broad groups:

- Network operators – Telecommunications providers, cable operators, or wireless providers that provide video services to the home. Comcast in the United States and Rogers Cable in Canada are examples of two of the larger global network operators.
- 'Pure play' CDN service providers – Companies that deploy and operate a CDN as their primary business to serve other content providers. CDN service providers typically need to enter into an agreement with network operators to deploy their equipment within the operator's footprint. Examples include Akamai, Limelight and EdgeCast.
- Content providers –Any group that makes content available for online viewing by end users, such as broadcasters, television networks or other content aggregators. Examples include large content producers like HBO, as well as online video aggregators like Netflix or Hulu.

Mobile operators are also seeking to respond to the huge increase in data being carried across their networks by offloading data onto wifi networks and investing in new 4G spectrum. Fixed operators are upgrading their access networks to meet the increasing demand for high-speed data. How to incentivise investment in next generation networks and how to regulate them is a hugely complex and politically charged area and is beyond the subject of this paper. These discussions on investment will however dominate the regulatory landscape for the next 5 years, especially given the political desire for next generation access networks to spur economic growth, and the impact that will have on the regulatory landscape cannot be underplayed, eg in Australia with the NBN, the EC's Digital Agenda and numerous programmes in Africa and Asia and the Arab States.

[5] Cisco, Visual Networking Index 2012.

1.4 The production and distribution of content

At the same time that the means of delivering content to end users have converged, there has also been a blurring of traditional vertical supply chains for the production and distribution of content. An example is the acquisition by Comcast, the largest cable operator in the US, of the media conglomerate, NBC Universal. The video on-demand service providers, Netflix and LOVEFiLM, have also made forays into content production.

Bundled services

The convergence of telecommunications and broadcasting and digital delivery has led to the emergence of bundled service packages that include voice, data and subscription television services. In response, there has also been a corresponding change in consumption patterns. Consumers are now showing a growing preference for buying these services jointly from one supplier, rather than buying them separately from multiple suppliers . As a consequence, bundled services are now commonplace across the telecommunications industry .

The use of double-, triple- and quadruple-play bundled packages has blurred the lines between previously separate markets, as players look to move along the vertical supply chain. It is now common for fixed network operators, mobile network operators, entertainment platform operators and providers without their own networks or platforms to compete directly.

Consumer preference for buying in bundles could threaten the viability of single- or dual-service providers. However, this appears to be the new norm in an increasingly connected world – bundled service packages may just be the vehicle for true inter-platform competition in a converged market. Current regulatory frameworks and principles are also being challenged by the growing prevalence of triple-, and in some cases, quadruple-play service bundles in the market – something which is discussed further in Section 4 below. It is also challenging more traditional regulatory models based on competition law principles where bundled service offerings cause some new challenges.

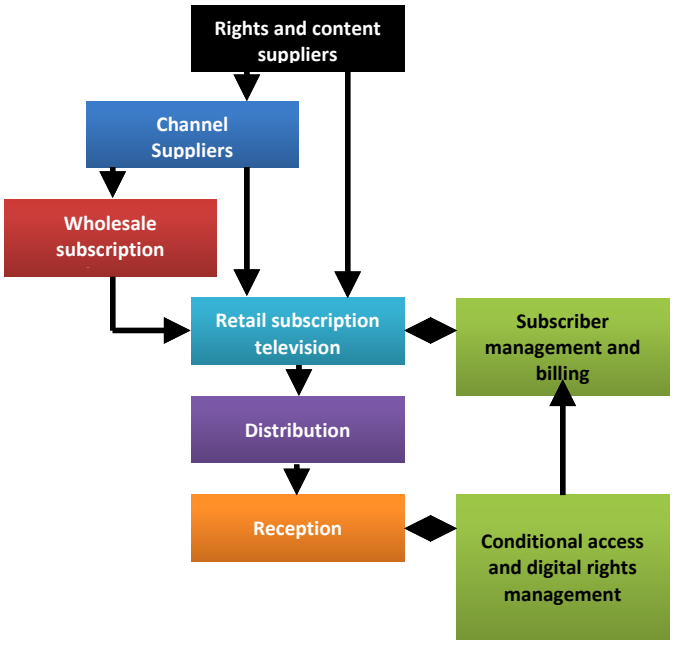
2. Global trends in online content delivery

2.1 Supply chains for the delivery of content

As the telecoms and broadcasting markets have converged, and new business models have started to emerge, the vertical supply chain for the delivery of content has also evolved.

The main stages in the supply chain for subscription television services are set out in Figure 2 below.

Figure 2: Supply chain for subscription television services



Source: Webb Henderson

The supply chain consists of six parts:

- At the top of the supply chain are the suppliers of rights and content. These include the producers of programmes or other content, as well as the holders of rights to sporting and other events and movies.
- The second element of the supply chain contains the channel suppliers (aggregators). When subscription television is provided in the form of channels (as opposed to being supplied on a program by program basis), the channel supplier aggregates programs from the rights and content suppliers.
- The third and fourth parts of the supply chain are the subscription television operators. These businesses can operate at the wholesale level, the retail level or both. A retail subscription television operator sometimes acquires content directly from a rights or content supplier but usually when the content rights being acquired are for a single program.
- The fifth element of the supply chain is the distribution mechanism. This is the transmission technology used by retail subscription television operators to deliver services to subscribers. The transmission systems include satellite, cable and, increasingly, broadband internet and mobile. This is where CDNs are increasingly being deployed.
- The sixth and final part of the supply chain is the reception of the subscription television service. This allows the content to be displayed on a suitable device such as a television, computer tablet or mobile telephone.

In the supply chain for pay per view services, the channel providers may be absent and the wholesale subscription television operator may be an aggregator of retail pay per view rights. Although this model is being blurred by the emergence of channels selling their video on demand and channels via pay per view models, rather than subscription, for example , NowTv in the United Kingdom.

From a technology perspective, there are some additional elements to the way that subscription television is delivered that are helpful to add to the supply chain. The first additional element is a billing system. The billing system needs to be able to identify the customer and the channels or programs to which they are entitled. The

entitlement is usually related to the payments that are made. The second additional element is a system that restricts what a customer can watch depending on their entitlements. This can be a system called "conditional access" or a series of systems called "digital rights management".

A conditional access system provides a consumer with access to television channel or programs subject to conditions having been met. Typically, the access is conditional on payment. However, conditional access can also be used to restrict viewing to specific geographical areas. Conditional access is implemented by "scrambling" a digital video signal so that it cannot be decoded unless it is descrambled. Provided that the customer is entitled to watch a program or a channel, the conditional access system permits it to be displayed by way of a smart card that sits in the customer's set top box.

Contrast these traditional delivery models with the new online content delivery models that have emerged in recent years. It is now common for content producers to reach viewers directly (e.g. YouTube, Major League Baseball, etc.) or for content aggregators (e.g. Netflix, Hulu etc.) to offer subscribers open access to content held behind a paywall.

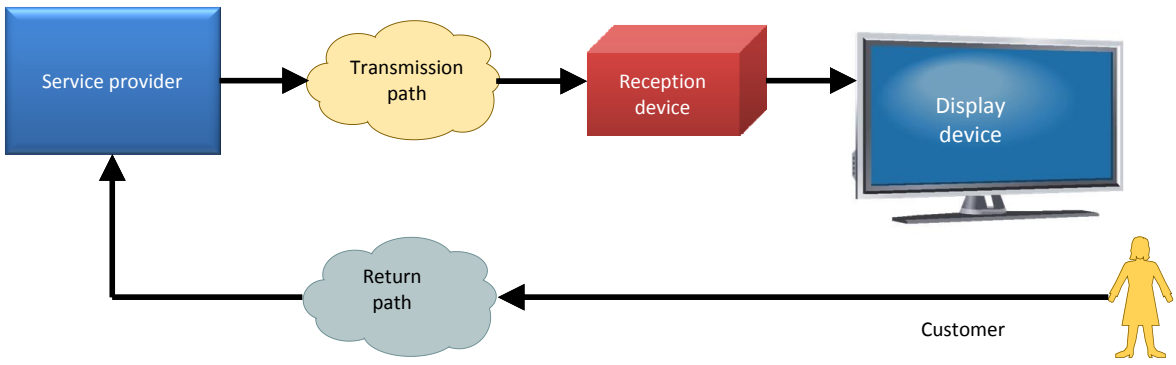
2.2 Delivery mechanisms

Subscription television services and pay per view services are delivered to customers over four main mechanisms. These are:

- satellite;
- hybrid fibre coaxial cable (HFC);
- digital subscriber loop (DSL); and
- mobile telecommunications.

Each of these content delivery mechanisms will be discussed in turn. An outline of the basic delivery system is set out in Figure 3.

Figure 3: Outline of delivery system



Source: Webb Henderson

(a) Satellite

In the case of satellite, the transmission path is via an uplink facility that sends signals to a satellite and a satellite that retransmits the signal for delivery of multichannel television to suitable reception equipment.

The reception device expects to receive a radio frequency signal. As a result, the service provider creates a number of multiplexes, each containing several channels, and then modulates a radio frequency carrier for each multiplex. The satellite has a number of devices that retransmit the signal received from the uplink facility to a dish

at the viewer's premises. At the focus of the dish, the transmitted frequency from the satellite is down-converted to the input frequencies used by the set top box. The viewer selects the channel that they want and the reception equipment then extracts the channel from the relevant multiplexed information and decodes it. The service is displayed on a display device, such as a television.

(b) HFC

In the case of HFC, the transmission path is a fixed telecommunications network with a number of elements designed to deliver multichannel television to suitable reception equipment.

Similar to satellite transmission, the service provider will create multiplexes containing various channels, which are then carried within a modulated radio frequency. The HFC operator delivers these radio frequency channels by fibre optic cables from a head end, via distribution hubs to nodes. At the node, the signal is converted from optical form to electrical form and then delivered by coaxial cable to a subscriber's premises. The viewer selects the channel to be received and the reception equipment extracts the channel from the relevant multiplexed information and decodes it for viewing on a display device. Bandwidth via cable is increasing materially and there are arguments that it will accelerate past fibre and DSL technologies in the near future and potentially emerge as a separate market for super high speed broadband and cable delivery.

(c) DSL

In the case of internet access provided over DSL, the transmission path uses the means of internet access used at the premises that is served.

The service provider streams individual services between its facility and the modem at the customer's premises. The reception equipment (e.g. set-top box) takes the stream of information and then decodes it. The service is then displayed on a display device, such as a smart TV or computer.

(d) Mobile telecommunications

In the case of mobile telecommunications, the transmission path uses the same radio frequencies that are used to provide internet access on the mobile device. The service provider streams individual services between its facility and the mobile device. The mobile phone takes the stream of information and then decodes and displays it on the mobile device.

2.3 Content offerings and other applications

Subscription television services can relate to channels or to programs. In terrestrial television, only channels are available. In either case, content is offered as a 'linear' service where programs are scheduled at specified times and on specific and named channels. Linear channels can also be delivered more than once with a time shift.

When terrestrial television was delivered in analogue form, the broadcasters aimed to provide a channel which had content with general appeal and with specific types of programming at defined times of the day or the week. On the other hand, subscription television was always expected to be a multichannel service. As a result, the channels designed for delivery as part of a subscription television service are not usually intended to have general appeal but are associated with a genre of programming. The channel provider will acquire the subscription television rights to content for these channels to match the genre of the channel.

In subscription television, a single program can also be made available. There are number of genres of service which are delivered on a program-by-program basis. The major genres are:

- on-demand movies;
- "catch up" services that allow viewers to watch programs that they have missed; and
- special live events, such as sporting or other cultural events where the event is a single program.

There is a growing preference for video on demand (VoD) programming. The original VoD models offered by traditional subscription television operators are still used widely. However, these VoD models have also evolved and expanded with the advent of internet-based services that are now available on a range of both fixed and mobile devices.

One of the issues facing traditional subscription television operators is how to ensure that a program that is offered as a VoD service is only used within the period for which rights have been granted. This is typically addressed using digital rights management information associated with a set top box to manage the access to the program.

Similar issues are less relevant for online content providers and content aggregators that offer access to extensive video libraries over the internet. These new online content delivery models are appealing because they give viewers a greater level of control over how and when content is consumed. The traditional subscription VoD service has been taken to the next level, where video can now be streamed at any time from any of the number of devices that have an internet connection, such as smart TVs, computer tablets and smartphones. Companies like Netflix, Hulu and LOVEFiLM have experienced a rapid growth in subscribers in recent years, which attests to the increasing popularity of new online delivery models. Netflix is now active in more than 40 countries and has more than 33 million subscribers globally[6]. Hulu is currently only active in the United States, where it has more than 4 million subscribers[7], although it is looking to expand internationally. LOVEFiLM is active in the United Kingdom, Germany, Denmark, Sweden and Norway and has more than 2 million subscribers[8].

2.4 Trends in content delivery and consumption

The world of television is changing. No longer independently located in your living room, television is increasingly linked to the internet. The right to make television content available online is valuable. People are willing to pay to have live or delayed television streamed to the multiple devices that are now found within most households. The result has been an evolution in the way that content is delivered and consumed.

In most countries, the traditional subscription and terrestrial broadcasting models continue to dominate. However, increasing access to reliable broadband and the growing number of connected devices have made it easier to watch video at a time and place of convenience for end users. As result, there is a gradual shift in the way that content is delivered and consumed.

One of the last stands for subscription television services has been the offer of premium programs, such as new release movies and live cultural or sporting events. However, even these traditional sources of strength have started to erode. Several major content producers now offer their products direct to customers over the internet. For example, several sporting leagues, such as Major League Baseball and the National Basketball Association, now offer subscribers the ability to stream live games. Similarly, content aggregators have also started moving up the video supply chain to produce their own content for direct release to their subscribers. A recent example of this was the Netflix production of the hit series House of Cards. Online music streaming services have become increasingly popular, with companies such as Spotify experiencing huge growth. Google has also entered this space with

[6] Netflix, Inc., Form 10-K Annual Report, 1 February 2013.

[7] http://www.screendigest.com/news/2013_05_us_subscription_vod_continues_to_fly_with_gains_from_hulu_plus_and_netflix/view.html

[8] http://corporate.blog.lovefilm.com/a-press-releases/amazon%E2%80%99s-lovefilm-hits-2-million-members.html

GooglePlay. There has also been an increase in user-generated content viewed online as a result of the popularity of services such as YouTube.

It is increasingly the case that SmartTv producers are bundling sales of their products with access to on demand programming, eg YouTube, BBC iplayer etc as well as internet access more generally and thus they could be seen to be developing as a type of aggregator of such services, away from the traditional means of accessing such content.

3. Business models in a converged market

3.1 Subscription-based models

The traditional subscription model will typically include payment of a regular (e.g. monthly) subscription fee in exchange for access to particular content. The core aspects of this basic model have not changed with the introduction of online paywalls and subscription content. However, there are a number of features that are unique to the distribution and delivery of digital content that must be now be considered by content providers.

The way that content is consumed has changed with the introduction of the internet. In the past, subscription content was generally only available to the subscriber and it was difficult for the subscriber to share that content. For example, cable television was often tied to a set-top box and newspapers could only be physically passed between users. However, digital content by its nature is not subject to the same restraints on consumption, unless they are imposed by the content provider. Digital content can be accessed from multiple devices which can make it difficult to enforce a paywall.

It is now common for content providers to offer both a free and a paid service. The free product tends to be a basic service that is offered to try to attract users. The hope is that the user will then be willing to pay a fee to access a premium product. This dual service offering has become almost a necessity to help content providers differentiate themselves from the countless other competing products that are now available online.

These differing features between online and traditional media has led to an evolution in the way that subscription-based models are implemented in the converged online market. Paywalls continue to be used extensively by the major newspapers who have largely migrated existing business models to online content. However, it is now common for some news content to be provided for free with the full or premium access available for a fee. For example, the Wall Street Journal provides free access to the video section of its website and non-subscribers are given a quota of free articles each month. Traditional news articles remain subject to a paywall.[9]

Similarly, it is common for VoD providers to charge users a subscription fee for "all you can eat" access to its content library. For example, Netflix subscribers pay a small monthly fee for unlimited access to its entire video library. Netflix's VoD service can be accessed at any time from multiple devices. YouTube, the popular online video sharing site, originated as free service but recently announced the introduction of additional subscription channels where users can pay for access to niche or premium programming.[10] In the UK, BskyB has launched a new "pay as you go" model on its internet TV service, whereby end users pay a fee for 24 hour online access to BSkyB's premium sports content.

[9] Engadget, 'New York Times videos now exempt from paywall, free 'for foreseeable future'' (23 April 2013) available online at http://www.engadget.com/2013/04/23/new-york-times-video-paywall-dead/ (accessed on 20 May 2013).

[10] New York Times, 'YouTube to plan a subscription option' available online at http://www.nytimes.com/2013/05/07/business/media/youtube-said-to-be-planning-a-subscription-option.html?_r=0 (accessed on 20 May 2013).

(a) Implementation of a paywall

A key consideration when selling content over the internet is how much of the offering to make available free or at cost.

A content provider that offers both a digital and a physical product will also need to consider whether its digital content should be offered as a complement to or substitute for the physical product. A provider will often offer a basic digital product or service to promote or complement take-up of a related physical product or service that is also offered by that provider. In some cases, if the majority of a provider's content is offered in both digital and physical formats and consumers are indifferent between them, the products may form perfect substitutes for one another.

Firms that offer a better or more comprehensive digital product may run the risk of 'cannibalising' their physical product. Cannibalisation refers to the reduction in the sales volume, revenue, or market share of one product (in this case, the physical product) as a result of the introduction of a new product (in this case, the digital product) by the same company. In some cases, the content provider might offer a differentiated service, seeking to target a different audience for its physical and digital products (e.g. The Daily Mail newspaper and the online news service (Mail Online) in the UK). However, a content provider that wishes to migrate its services online may intentionally cannibalise its physical product for the benefit of its digital offering. These issues are particularly relevant for print media which continues to face growing pressure from consumers to improve the content that is provided online.

3.2 Online advertising models

A number of free content delivery services are now offered without a subscription or access fee, which tends to require reliance on alternative sources of funding such as online advertising models.

The basic premise behind online advertising models is that content is effectively given away to users without a cost, or at only a minimal cost to users, in an effort to generate web traffic. This traffic is then on-sold to advertisers for a profit. It has been estimated that approximately $99 billion was spent in 2012 in internet advertising, which represents close to 20 per cent of total advertising investment.[11]

Two of the more commonly used online advertising models are:

- Cost per Click (CPC) and Pay per View (PPV): CPC requires an advertiser to pay each time a user clicks on their listing and is redirected to their website. The advertiser typically will not pay an upfront fee to list their message, but will then be required to pay each time that message is clicked on by a viewer. PPV is similar to CPC, except it requires an advertiser to pay for each click regardless of whether the user makes it to the target site or not.
- Cost per Action (CPA): this is a performance-based advertising model that relies on a publisher taking on all the risk of running an ad. For example, an advertiser may only be required to pay once a purchase is made of the advertiser's product based on an ad on the publisher's site.[12]

[11] GroupM, 'Global internet ad spend hit $99bn in 2012, almost 20% of total investment' (27 March 2013) available online at http://www.wpp.com/wpp/press/2013/mar/27/global-internet-ad-spend-hit-99bn-in-2012/ (accessed 15 May 2013).

[12] Yu Hu, Jiwoong Shin and Zhulei Tang 'Performance-based pricing models in online advertising: cost per click versus cost per action' (September 2012).

3.3 Hybrid models: combination of subscription and online advertising

The continued movement towards online content delivery models appears to be inevitable, but, for the reasons discussed above, the shift away from traditional media remains gradual. As a result, there appears to be a general reluctance by advertisers to fully embrace the online marketplace. This has led online content distributors to find new and diversified revenue streams to support the delivery of their products or services.

The most common solution has been to implement some form of hybrid business model that combines elements of both subscription- and advertising-based business models. A good example of this can be found in the online music streaming industry where several large players, such as Pandora and Spotify, have emerged to rival the broadcast radio industry. Rather than apply the traditional radio business model, which relied almost exclusively on advertising revenues, online music streaming providers have tended to offer a basic service that is funded by ads along with the ability to subscribe to a premium service.

Related business models are also being used in other online content delivery industries. For example, the New York Times has announced that its paywall has been removed for the video section of its website. Users will still be required to pay a subscription to access unlimited new articles (a quota of free viewing has always been available), but access to its video library will now be funded by online ads meaning that it will be free for users.[13]

The use of hybrid business models allows online content distributors to diversify revenue streams to prevent an over-reliance on any one source of funds. Online advertising appears to have the greatest potential for growth as advertisers gradually become more comfortable with internet-based business models, but in the interim the revenue from subscription fees should continue to support the shift away from traditional media consumption.

3.4 Other revenue streams

(a) Product placements

Product placement is the purposeful incorporation of commercial content into non-commercial settings in order to promote a particular product or brand. While product placement can be riskier than conventional advertising, it is becoming a common practice to place products and brands into mainstream media, such as films or television programs.[14]

Media fragmentation, media proliferation, and declining advertising efficacy have seen product placements become an increasingly effective way to reach consumers and non-users. It is estimated that two-thirds of television viewers attempt to avoid watching advertisements by cutting the sound during a commercial, channel-surfing, or skipping the program altogether because the ad is viewed as annoying or irrelevant.[15] Product placements are directly integrated into the program making them more difficult to avoid, which presents an attractive option for advertisers looking to maximise the number of eyes viewing their products.

[13] Engadget, 'New York Times videos now exempt from paywall, free 'for foreseeable future'' (23 April 2013) available online at http://www.engadget.com/2013/04/23/new-york-times-video-paywall-dead/ (accessed on 20 May 2013).

[14] Kaylene Williams, Alfred Petrosky, Edward Hernandez and Robert Page Jr, 'Product placement effectiveness: revisited and renewed' (April 2011) 7 *Journal of Management and Marketing Research* 1-2.

[15] David Kiley, 'Television: Counting the eyeballs' (15 January 2006) *Bloomberg Businessweek* available online at http://www.businessweek.com/stories/2006-01-15/television-counting-the-eyeballs (accessed on 21 May 2013).

Much has been made of the extensive use of product placements in Netflix's recent hit series *House of Cards*.[16] In an effort to compete with its larger rivals, Netflix acquired and developed its own original content. However, in order to keep its costs down, Netflix decided to use product placements to subsidise the cost of production without the use of traditional commercials (which is the Netflix business model).

(b) Movements along the supply chain

The production, aggregation and distribution of content online can present opportunities for growth into markets or elements along the content supply chain. It is now common for players in traditionally separate markets to move up or down the content supply chain in an effort to expand potential revenue sources.

Convergence is occurring at all levels of the supply chain. Telecoms operators and cable TV providers have traditionally operated in separate markets, but the growing preference for online products and services has now brought players within these sectors into direct competition with one another. Similarly, the increasing demand for CDNs may also serve as a platform for a new line of business. Network operators and content aggregators are often able to generate new B2B revenue streams by providing wholesale CDN services to content providers, aggregators and other B2B customers.[17]

These are only two of the countless opportunities available in the new converged content market. The specific circumstances of a particular business should be considered to evaluate whether an expansion along the content supply chain would be profitable.

(c) Business synergies

The ability to partner with other businesses can lead to potential cost savings and new sources of revenue. Exclusive content deals, where premium content is made available only over certain platforms in exchange for beneficial delivery terms, are a good example of a 'business synergy' that are now commonly used. Most set-top boxes, such as AppleTV and Roku, offer their subscribers access to certain programs based on the content deals that are in place with content producers. These types of relationships can benefit both parties – content producers have direct access to viewers at discounted rates and set-top operators are able to increase their offering to attract subscribers.

3.5 Case studies

It is worth considering a few case studies to see how each of the above business models is successfully applied by the leading online content delivery providers.

(a) Google

Google is an example of a company that has achieved enormous success by using a business model that relies almost entirely on online advertising revenues.

AdWords is Google's primary online advertising product. AdWords continues to be one of Google's main sources of revenue netting the company an estimated $43.7 billion in advertising dollars in 2012.[18] As the leading

[16] See Natasha Lomas, 'Netflix's 'House Of Cards' Is Internet TV-Funded Original Programming But Don't Kid Yourself It's Ad-Free' (11 February 2013) available online: http://techcrunch.com/2013/02/11/netflixs-house-of-cards-is-internet-tv-funded-original-programming-but-dont-kid-yourself-its-ad-free-spoiler-alert/ (accessed on 21 May 2013).

[17] Cisco, 'Wholesale Content Delivery Networks: Unlocking New Revenue Streams and Content Relationships (White Paper)' (2012) 1.

[18] Google Inc, 'Investor relations: 2013 financial tables' available online at http://investor.google.com/financial/tables.html (accessed 16 May 2013).

online search engine, Google offers advertisers advanced user information and the opportunity to provide their target audience with a tailored message. This level of access to consumers goes well beyond anything that is available over other traditional media types, which allows Google to charge a premium for use of its AdWords product.

(b) Facebook

Facebook is another example of a company that has sought to translate its substantial user numbers into online advertising dollars. Originally established as a small social networking site in 2004, Facebook now has some of the highest traffic volumes on the internet. The company claimed to surpass one billion users in September 2012[19] and reported a profit of $5.1 billion for the 2012 financial year.[20]

Besides its expansive user base, what makes Facebook particularly attractive to advertisers is the sheer amount of personal data that the company has access to about its users. Facebook requires all new users to set up an account which entails providing detailed personal data about the user. Following registration, Facebook members are then free to roam the site and to interact with other Facebook users. All of these interactions can be tracked and detailed personal profiles pieced together to give advertisers the ability to directly tailor and pitch their messages to a targeted audience.

The unprecedented access that companies like Facebook and Google have to a user's personal life and their ability to use or sell a user's personal data to third parties has raised issues on what is an acceptable use of user data and presents significant challenges in terms of privacy and data protection regulation.

(c) Netflix

Netflix Inc. is a leading provider of VoD internet streaming services. The company started by offering a basic DVD-by-mail service and over time it gradually built up a substantial video library that its subscribers could access for a small monthly fee. Netflix now has over 33 million global subscribers and a total revenue of approximately $US 3.6 billion for the 2012 financial year.[21]

In contrast to traditional broadcast and cable television providers, Netflix offers its subscribers unlimited access to premium content that is free from advertisements. Netflix operates with a reduced cost base – online streaming tends to be cheaper than other delivery models and Netflix generally offers delayed access to new content – which has allowed it to rely on subscription fees without the need for advertising revenues.

In March 2011, Netflix announced its intention to acquire original content for its subscription streaming service. The first title to be released was the hugely successful political drama *House of Cards*.[22]

The growth in the popularity of VoD services has led to a huge increase in the demand for securing the rights to broadcast content online, with a consequent increase in the value of such rights in their own right. In the past, such rights were often bundled in with the primary broadcasting rights.

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[19] Wallstreet Journal, 'Facebook: One billion and counting' available online: http://online.wsj.com/article/SB10000872396390443635404578036164027386112.html (accessed on 16 May 2013).

[20] Securities and Exchange Commission, 'Facebook Current Report, Form 8-K, Filling Date July 26, 2012' available online at http://pdf.secdatabase.com/700/0001193125-12-316895.pdf (accessed 16 May 2013).

[21] Netflix Inc, 'Form 10-K: Annual Report filed for the period ending 12 December 2012' (1 February 2013) 19.

[22] All things D, '"House of Cards" could cost Netflix big – And still save it money in the end' (16 March 2011) available online at: http://allthingsd.com/20110316/house-of-cards-could-cost-netflix-big-and-still-save-it-money-in-the-end/ (accessed on 20 May 2013).

4. Overview of global regulatory models

4.1 Regulation in a converged environment

Traditionally, there has been a clear division between the regulation of telecoms networks and broadcasting content, with separate regulatory regimes and regulators. Content regulation has been focused largely on offline content, delivered over traditional broadcasting platforms.

The blurring of vertical supply chains for the production and delivery of content, and the emergence of new business models for monetising content, have also given rise to a number of new and complex regulatory issues. This has given rise to questions about the effectiveness of existing regulation and the role to be played by competition law.

In the following sections, a summary is given of the different approaches that have been taken to regulation in the following countries: France, Belgium, Australia, China, Malaysia and Qatar. An overview of the market in each of these jurisdictions is provided, followed by an outline of the regulatory regime and some recent developments. Section 5 then seeks todraw some conclusions on the trends and themes that are emerging in global regulation and the key issues that regulators face.

4.2 France

(a) Overview of the French market

Cable TV launched the first pay television services in France in 1982, followed by the creation of subscription channel Canal+ in 1984. Satellite TV was launched in 1996, with the main providers being Canal Satellite, TPS and AB.

More recently, triple and quadruple play bundled offers by ISPs have challenged the dominance of cable and satellite television providers. ISP typically include default television channels as part of the basic subscription, with premium channels being accessible for an additional fee and also VoD services. Such offers are currently made by Free, SFR, Bouygues, Orange and other ISPs.

Subscription television channel Canal+ is the biggest content owner and distributor in France. This is largely due to its merger with satellite providers, Canal Satellite and TPS. It has a significant concentration of premium content with exclusive rights to sports, documentaries and films.

ISPs are now the main competitors of Canal+ in the television distribution market. Free is one such ISP that offers Canal+ content through its Freebox modem-router set top box.

Different strategies have emerged:

- Orange has positioned itself very much at the top of the distribution chain by purchasing broadcasting rights and launching television channels available only to its subscribers. Orange has also created a film production company (Studio 37) and purchased content from HBO and Warner.

- ISP Free has purchased content directly from Canal+, in contrast to Orange's strategy.

(b) Current regulatory framework

Separate regulatory regimes exist in France for regulating telecommunications networks and services and television content.

The *Autorité de régulation des communications électroniques et des postes* (ARCEP) has the power to regulate telecommunications providers.

A separate entity, the *Conseil supérieur de l'audovisuel* (CSA), regulates the broadcasting sector. The CSA is responsible for the assignment of frequencies and licences, as well as for content issues (e.g. in terms of age ratings, political bias, consumer protection and cultural promotion).

(c) Recent developments

Net neutrality

An increasingly important regulatory issue in the converged environment has been whether and how to regulate for net neutrality. Net neutrality is the principle that all data on the internet should be treated equally, without any discrimination based on the user, content or application.

In September 2012, ARCEP submitted a report to the French Parliament regarding net neutrality[23]. The report focuses on four key areas: transparency, quality of internet access services, traffic management and interconnection. In relation to transparency, ARCEP recommended that improvements are made in terms of information provided to consumers regarding available services, their quality and limitations. ARCEP also proposed new quality of service indicators for network operators, which will be measured and the results published. ARCEP noted certain traffic management practices taken by operators, including blocking or priority queues. It said that it would intervene if these practices continued. In relation to interconnection, the report considered that no further regulation was required at the present time, although ARCEP said that it would continue to monitor the situation. It is now for the French Parliament and the Government to decide whether any further action is required in light of ARCEP's conclusions.

Competition law enforcement/merger control

Issues arising from convergence have been dealt with, to a large extent, through competition law enforcement and merger control, rather than ex ante regulation.

There have been various relevant decisions by the French competition authority in recent years involving the provision of TV content, in particular in relation to exclusive arrangements.

AFORST complaint

In a decision[24] dated 7 May 2008, the French competition authority rejected a complaint by AFORST (the French telecommunications providers' association) in relation to a commercial agreement between France Télécom and France Télévisions (state-owned television group). The agreement provided for France Télécom to have the exclusive right to provide France Télévision's VoD content. AFORST complained that other ISPs could not compete on an equal basis if they did not have access to this television content and that the agreement infringed EU and French competition law.

The authority concluded that it had not been demonstrated that the arrangement had an anti-competitive effect. In particular it noted that the agreement only applied to certain types of restricted content and that no premium content was included in the deal. It also noted that there were no significant barriers to customers of

[23] http://www.arcep.fr/uploads/tx_gspublication/rapport-parlement-net-neutrality-sept2012-ENG.pdf

[24] http://www.autoritedelaconcurrence.fr/pdf/avis/08d10.pdf

other ISPs accessing the relevant content through other channels (TV and France Télévision's own online catch-up service).

Legal opinion on "double exclusivity"

In a subsequent opinion issued in July 2009[25] , the French competition authority looked at a new offer introduced by Orange, which involved making certain sports and other content available exclusively to customers who also purchased Orange's broadband access services. According to the competition authority, Orange's "double exclusivity" (exclusivity of content distribution and exclusivity of transmission and access to content) raised competition law concerns, in particular in terms of reducing choice for consumers and raise switching costs.

The competition authority indicated that this type of exclusive arrangement should be limited in time (1-2years) and should only apply to new innovative services. The authority also recommended the use of "self-distribution", which would involve content distributors making their content available on multiple platforms, rather than locking in consumers to one particular means of access.

The authority considered that existing competition law and regulations are not sufficient to deal with the issues raised by "double exclusivity" and recommended new legislation. To date, however, no such legislation has been adopted.

Acquisition of Canal Satellite and TPS

In July 2012, the French competition authority published a decision approving the acquisition of the two main satellite pay TV providers, TPS and Canal Satellite, by Vivendi Universal and Canal+. The merger approval was made subject to compliance with various requirements relating to the purchase of movie rights, distribution of pay TV channels and VoD.

Canal+ had previously obtained approval to acquire TPS in 2006. As a condition for obtaining approval, Canal+ was required to comply with a number of obligations aimed at ensuring that competing pay TV providers had access to attractive content in order to be able to compete effectively. In September 2011, the competition authority found that Canal+ had failed to comply with some of its obligations and it revoked approval for the merger. A revised notification was subsequently made in 2012.

Complaint by Cogent against France Telecom

In September 2012, the French competition authority issued a decision in relation to a complaint by, Cogent, a transit operator, regarding France Telecom's decision to require the payment of a fee for making available additional capacity above a certain limit. The authority considered that charging a fee was not, in itself anti-competitive. In particular, it noted that it was common practice on the French market to charge a fee where (as here) there was a significant imbalance between incoming and outgoing traffic. However, the authority expressed a concerned about the potential for a margin squeeze or discriminatory pricing by France Telecom, which was required to offer certain commitments aimed at preventing such practices.

[25] http://www.autoritedelaconcurrence.fr/pdf/avis/09a42.pdf

4.3 Belgium

(a) Overview of the Belgian market

Cable networks dominate the TV market in Belgium, the main providers being Telenet, Brutélé and Numéricable.

Belgacom is the dominant broadband provider and provides IPTV services over its broadband network.

Bundled offers have become increasingly popular in Belgium. Belgacom, Billi and Mobistar all provide quadruple-play bundles, including both fixed and mobile services, as well as broadband and subscription television. Others telecom operators (for example, Numéricable) offer triple-play bundles, providing either fixed or mobile telephony in addition to broadband and subscription television.

Belgium has two specificities that stand out: a very high rate of households connected to cable and distinct regional identities based on language. Almost 80% of Belgian homes purchase subscription television services, but users tend to watch content based on their native language and cable providers, as a result, generally operate in distinct geographic areas.

In terms of television content, Belgacom is the main competitor to cable providers thanks to its IPTV platform. It has launched a TV Partout service (literally 'TV Anywhere') which is available on a variety of portable devices. Belgacom has also secured rights to broadcast the Belgian football championship.

(b) Regulatory framework

As in France, there are separate regulatory regimes and regulators in Belgium for telecommunications networks and services and broadcasting content.

The *Institut Belge des Services Postaux et des Télécommunications* (BIPT) is the national postal and telecommunications regulator, with power to regulate interconnection and network access.

There are three separate regulatory authorities which each regulate TV and radio content for their respective language community:

- the *Vlaams Regulator voor de Media* (VRM) regulates TV and radio broadcasting in the Dutch-speaking part of Belgium;

- the *Conseil Supérieur de l'Audiovisuel* (CSA), is the equivalent of the VRM for the French speaking part of Belgium; and

- the *Medienrat* is the equivalent of the VRM but for the German-speaking part of Belgium.

In addition to regulating content (child protection, ratings, taking complaints from the public), each of these regulators also take decisions relating to spectrum and licensing.

Until 2006, these regulators operated entirely separately. However, in 2006, a cooperation regime was introduced. This provides that any decision made by one of the regulators must be shared with the other regulators who

can make remarks and contributions to the decision. A committee[26] (CRC) oversees all the regulators can be asked to arbitrate disagreements and make a final decision.

In a judgment in 2007[27], the Belgian Arbitration Court (now the Constitutional Court) ruled that the regulators' powers to regulate TV and radio content was not limited to any particular means of broadcasting such content. It also held that their powers entitle them to set various technical aspects of the transmission of information, which are ancillary to the power to regulate TV and radio broadcasts.

(c) Recent developments

Multicast reference offer

In a decision published in 2011[28], a joint body formed of Belgium's national and regional regulators, the Conférence des Régulateurs du Secteur des Communications ("CRC"), required Belgacom to publish a reference offer for a "bitstream product with multicast features equivalent to those already offered to Belgacom's own retail arms or partners for retail." Multicast refers to the delivery of data to multiple destinations in a single transmission.

The CRC left open the option for Belgacom to make an alternative reference offer available, which Belgacom subsequently did by offering access to its IPTV platform. Despite certain objections from competitors to the terms offered by Belgacom, the reference offer was subsequently approved by the BIPT.

Cable wholesale offer

In a decision in July 2011[29], the BIPT imposed an obligation on a number of cable providers, including Brutélé, Telenet and Numéricable, to make a reference offer for wholesale analogue TV, digital TV and broadband. These providers were all identified as possessing significant market power (SMP) on the market of wholesale digital signals via coaxial cable and have been required to comply with non-discrimination, price control and transparency obligations. They have also been required to provide Service Level Agreements (SLAs) and to publish Key Performance Indicators (KPIs).

The draft reference offers are yet to be approved by the BIPT.

Net neutrality

The BIPT published a decision regarding net neutrality in 2011[30]. It decided to adopt a 'wait and see' approach and to continue to monitor market developments before deciding whether any action was appropriate. The BIPT concluded that it was unlikely that Belgian ISPs would discriminate against competing services and that the degree of competition was sufficient to preclude this type of anti-competitive activities.

[26] Conférence des Régulateurs du secteur des Communications électroniques (CRC) – no website available.

[27] http://www.internet-observatory.be/internet_observatory/pdf/legislation/jur/jur_be-2004-07-14_fr.pdf

[28] https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0CDEQFjAA&url=http%3A%2F%2Fwww.ibpt.be%2FShowDoc.aspx%3FobjectID%3D3541%26lang%3Dfr&ei=pjqjUdfgEIbJ0QXJrYD4Dw&usg=AFQjCNE2M75Jo-Le73MDazhMUaWAkj9_xw&sig2=Vq0Ecm0CihmOZLyK3iPqwA&bvm=bv.47008514,d.d2k

[29] http://www.ibpt.be/GetDocument.aspx?forObjectID=3541&lang=fr

[30] http://www.ibpt.be/GetDocument.aspx?forObjectID=3628&lang=fr

4.4 Australia

(a) Overview of the Australian market

The incumbent fixed telecoms operator, Telstra, offers Foxtel content (Foxtel being a cable TV company too), via set top box, mobile phones and other devices. Foxtel is a joint venture between News Corporation and Telstra.

A rival fixed telecoms operator, Optus, also offers Foxtel content as a result of a 2002 content sharing arrangement between the companies[31]. Until then, such content was exclusive to Foxtel. Optus makes the content available to consumers using Foxtel's set top box. Optus also provides television content to mobile device users.

Being a Telstra customer or even a Foxtel cable customer is not necessarily a condition of accessing Foxtel content since its IPTV platform is available to any owner of a 2012 model Samsung Smart TV with internet connectivity.

OTT products available in Australia include Fetch TV, which has partnerships with ISPs including Optus, iiNet and Westnet.

Netflix is not available in Australia.Google TV is available to owners of its Sony-manufactured set-top box and Apple TV as well.

Despite the flurry of commercial activity and multiplication of IPTV offers, Australians still watch TV mainly in 'offline' mode[32].

(b) Regulatory framework

The Australian Communications and Media Authority (ACMA) is responsible for regulating telecommunications, broadcasting, internet and radio.

ACMA's broadcasting powers include the 'traditional' powers to regulate content, protection of minors, the granting of licences and the power to scrutinise ownership of companies. Online content is regulated through a complaints scheme. In terms of telecommunications, there are access regulations in place with obligations on the incumbent to sell regulated wholesale access to other providers.

(c) Recent developments

Convergence Review

The Australian government noted a need for a change in approach to regulation in its Convergence Review final report published in March 2012 . This report concluded that the distinction between broadcasting and telecommunications had become increasingly blurred and the existing regulatory frameworks had outlived their original purpose and risk inhibiting the evolution of communications and media services.

The report proposed the creation of a new communications regulator to replace ACMA that operated on an 'open principles' framework as opposed to the current black letter regulation. It was considered that this would enable the regulator respond more effectively to the dynamic and rapidly changing technological advances of converging media. The report also proposed the removal of broadcast licences, which it considered were difficult to

[31] http://transition.accc.gov.au/content/index.phtml/itemId/754954

[32] ACMA, Digital Australians online survey, 2011.

administer and represented an unnecessary burn on industry. However, the report proposed retaining rules on media ownership, media content standards and rules to promote Australian content production.

The report recognised that content had the potential to become an access bottleneck and it proposed that the new regulator would have power to make rules on content-related competition issues.

The Government has proposed a phased process for implementing these reforms.

Bundling of content and broadband

Australian competition law prohibits so-called 'third line forcing'. This refers to the situation where one component of a product (e.g. television content) can only be purchased if another component is also purchased (e.g. broadband internet access). However, it is possible to apply for an exemption from this prohibition from the Australian Competition & Consumer Commission (ACCC), the Australian competition authority. This was the case in 2004 when Telstra notified the ACCC of its intention to sell Foxtel TV content bundled with a broadband subscription[33] . The Commission conducted an assessment, which considered the potential effect of the proposed arrangement on competition and on the public. The ACCC found that there would be no lessening of competition and that the intended product would result in 'net public benefit' as it provided users access to discounted television content[34].

A similar exemption was granted to Optus, which offers discounted TV services when purchased together with a telephony and/or internet subscription[35].

Acquisition of Austar by Foxtel

The acquisition of Austar by Foxtel (both subscription television providers) in 2012 also gave another example of the ACCC's approach to monitoring and promoting competition in the audiovisual industry. Approval of the transaction was made subject to binding undertakings from Foxtel not to enter in certain exclusive deals[36].

Access to 'bottleneck infrastructure': bundling and net neutrality

The ACCC commented in February 2013[37] that, while the popularity of OTT content was a sign of healthy competition, there exists the potential for anti-competitive behaviour in terms of access to 'bottleneck infrastructure'.

In particular, the ACCC noted the utilisation network operators of traffic management techniques. It stated that, in many instances, traffic management is a legitimate tool for network operators to ensure that their networks perform efficiently and reliably. However, some traffic management practices have the potential to raise competition concerns and could be used to block or slow a competitor's content. The ACCC referred to the importance of transparency over traffic management practices. It said that information about such practices should be provided to consumers at the time of entering into a contract or when such a practice is introduced, in order to enable consumers to make an informed choice about the services they adopt.

[33] http://transition.accc.gov.au/content/trimFile.phtml?trimFileTitle=D04+20385.pdf&trimFileFromVersionId=775132&trimFileName=D04+20385.pdf

[34] http://transition.accc.gov.au/content/trimFile.phtml?trimFileTitle=D04+32351.pdf&trimFileFromVersionId=775132&trimFileName=D04+32351.pdf

[35] http://transition.accc.gov.au/content/trimFile.phtml?trimFileTitle=D00+27846.pdf&trimFileFromVersionId=775424&trimFileName=D00+27846.pdf

[36] http://www.smh.com.au/business/foxtel-gets-accc-nod-to-swallow-austar-20120410-1wlsv.html

[37] http://www.accc.gov.au/speech/observations-on-audiovisual-content-delivery-in-australia

4.5 China

(a) Overview of the Chinese market

There are three main State-owned television networks in China: China Central Television (CCTV), China Education Television and China Xinhua News Network Corporation.

TV is provided mostly by cable and satellite. There are thousands of different cable providers who operate in defined geographical areas.

China Telecom and China Unicom form a duopoly in the provision of internet services. Most subscribers access the internet through DSL.

China Mobile dominates the mobile market with a 70% market share, the remainder being shared by China Telecom and China Unicom.

IPTV in China is provided by the 'big three' providers: China Telecom, China Unicom and China Digital TV Co[38]. CCTV also launched an online TV platform in December 2009. The China Times wrote in March 2013 that IPTV users reached 14 million, and mobile TV 52 million. However, these figures are lower than cable TV users, which exceed 100 million.

The relatively low take-up of IPTV in China can be put down to a number of reasons, one being the lack of exclusive and desirable content[39].. Much of the current IPTV content can be accessed by other means. Another reason may be the level of state control. Radio and television content is subject to strict supervision and licensing. The IPTV market is also regulated by three different administrative bodies.

(b) Regulatory framework

China's main telecommunications and postal regulator is the Ministry of Industry and Information Technology (MIIT)[40].

The media sector is regulated by the State Administration of Radio, Film and Television (SARFT), the General Administration for Press and Publication (GAPP) and the Ministry of Culture (MoC).

The existence of different regulators for telecommunications, on the one hand, and media, on the other hand, has led to some difficulties in respect of converged products, with the different regulators taking sometimes conflicting decisions. Moreover, the strictly defined scope of existing telecoms licences has made developing new converged services more difficult, although recent developments in the licensing regime may make this easier (see below).

The provision of internet services is heavily regulated in China. Any company which broadcasts audio or video programmes via the internet requires a licence and is subject to regulation by SARFT.

[38] http://www.ufam-automation.net/idtvec/acceptedpapers/W1_2_gu.pdf

[39] http://www.analysysmason.com/About-Us/News/Insight/China-cable-broadband-market-Nov2012/#.UZ59KgL2aIA

[40] http://www.miit.gov.cn/n11293472/index.html

(c) Recent developments

Merger of cable and TV networks

In October 2005, the State Council adopted the Three Network Integration Programme, which was aimed at removing the barriers to the integration of telecom and cable TV networks. It is envisaged that the process of merging telecom and cable TV network will be completed by 2015.

Notice encouraging the development of digital television broadcast

In January 2008, the National Development and Reformation Commission (NDRC), MIIT and SARFT and three other ministries adopted a Notice encouraging investment in digital broadcasting. The detailed rules required to implement this Notice have yet to be adopted.

Pilot project for new telecommunications business

The MIIT has recently responded to the emergence of new types of technology and business models as a result of convergence by making certain changes to its licensing arrangements.

Under the current telecoms licensing regime in China, there is a list of the different types of telecommunications business which can be licensed by the MIIT. The MIIT has recently introduced a pilot scheme enabling existing operators to provide, on a trial basis, telecommunications business which are not referred to in the Catalogue, subject to filing certain information about the new business with the relevant authority. The MIIT will then decide whether to add the relevant business to the Catalogue going forward. In this way, the MIIT will be able to respond more quickly to technological changes and new business models.

4.6 Malaysia

(a) Overview of the Malaysian market

State-owned Telekom Malaysia (TMnet) is the country's largest telecommunications company, providing fixed telephony as well as internet access and IPTV (HyppTV).

Maxis Communications, Celcom Axiata and DiGi Telecommunications all provide mobile services. There is a very high mobile penetration rate in Malaysia (127%)[41] and a corresponding decline in the popularity of fixed services.

The high demand for mobile services is also evidenced by the way Malaysians access the internet. According to data published by the Malaysian Communications and Multimedia Commission (MCMC), 43% of Malaysians access the internet using mobile, compared to only 30% using ADSL.

Malaysians tend to prefer buying pre-paid mobile phone products (at least twice as many prepaid 3G subscriptions as postpaid ones) and rely on public hotspots and WiMax for internet connectivity, or take advantage of partnering between OTT providers (e.g. Whatsapp use is unlimited with DiGi).

Malaysians generally watch TV by satellite as provided by Astro, which claims a 50% penetration rate[42].. Astro also provides IPTV and OTT platforms and has the exclusive right to provide satellite TV until 2017.

[41] http://www.skmm.gov.my/skmmgovmy/media/General/pdf/SKMM_2011.pdf

[42] http://www.astro.com.my/portal/about-astro/

IPTV is a relatively new but fast-growing way of watching TV in Malaysia. According to figures published by the regulator, there were more than 300,000 IPTV subscribers in 2012. The vast majority of these subscribers are served by Telekom Malaysia's HyppTV platform[43]..

The ability to offer IPTV products is largely due to the National High Speed Broadband (HSBB), a government initiative which aims to provide speeds between 10 to 100 Mbt/s nationwide. The HSBB network is run by Telekom Malaysia, but it is obliged to provide wholesale access to its competitors.

Maxis has taken advantage of wholesale access to the HSBB network and intends to compete with Telekom Malaysia for IPTV subscribers, as evidenced by its partnership with 14 content providers. Maxis has announced its intention to launch IPTV products by Q3 2013.

Astro also provides IPTV, but using fibre operator Time Otcom's fibre rather than the incumbent's access network.

In contrast with its open competition with the incumbent, Maxis has partnered with Astro (dominant satellite and pay TV provider) to jointly develop product bundles.

(b) Regulatory framework

Malaysia has been innovative in the regulatory field by recognising the need for a converged system of regulation as early as the 1990s. The MCMC has the power to regulate not only telecommunications but also multimedia and content and also takes decisions on competition matters.

The legal framework for this is the Communications and Multimedia Act 1998[44].. Key features of this legislation include the creation of a self –regulatory industry body which governs content through its own code of practice[45].

Prior to the adoption of this legislation, licences were technology-based. Licences are now technology and service neutral, although they are still broken down into four separate categories: network facilities, network services, application services and content application services[46].. Network facilities are defined as any element of physical infrastructure used for the provision of network services. Network services are services for carrying communications by electromagnetic radiation. Application services are services provided by one or more network services and content application services are applications services that provide content.

Internet services, including VoIP, are regulated as application services. Internet content application services are exempt from the need to hold a licence.

Certain types of network facilities and network services are included on an access list, which means that they are subject to additional obligations, including a requirement to provide access on an equitable and non-discriminatory basis.

New competition legislation came into force on 1 January 2012, but this does not apply to commercial activities regulated by the Communications and Multimedia Act 1998.

[43] http://www.slideshare.net/smita_amin/malaysia-telecommunications-report-q1-2013

[44] http://www.agc.gov.my/Akta/Vol.%2012/Act%20589.pdf

[45] http://cmcf.net/?p=53

[46] http://www.ubifrance.com/medias/press/mcmc-overview-of-malaysian-communication-and-broadcast-industry-24.09.2012_3_10_2012_19_24.pdf

It is therefore up to the MCMC regulator, using its powers in the 1998 legislation, to scrutinise and enforce competition law in the telecommunications sector. This legislation includes prohibitions on anti-competitive behaviour, collusive agreements and bundling/tying.

4.7 Qatar

(a) Overview of the market in Qatar

Qatar Telecom (previously known as Qtel, but recently rebranded as Ooredoo) had a monopoly over the provision of telecoms services in Qatar until 2006[47].. Although Saudi Telecom and Vodafone have since entered the market as competitors. Ooredoo is still the main provider[48].

Vodafone competes with Ooredoo on the mobile market, offering mobile internet and voice services only. Vodafone also has a licence to provide fixed services but its services are mostly restricted to The Pearl Qatar and Barwa City areas[49].

IPTV in Qatar comes in the form of Ooredoo's Mozaic TV service. Ooredoo has also introduced a next generation version of this service, which is only available to customers connected to its fibre network[50].

A report by the Qatari regulator (ictQATAR) in 2010 noted that 15% of Internet users in Qatar accessed TV services online[51]. The relatively low take-up of Internet TV can perhaps be explained by the low average speeds of Qatari internet (1-2 Mbit/s), although the Qatar National Broadband Network fibre rollout initiative should change this in the future.

The report by ictQATAR also notes the lack of local content creation (only 3% of the digital media online is in Arabic).

(b) Regulatory framework

The Supreme Council of Information & Communication Technology (ictQATAR) regulates telecommunications in Qatar[52].

ictQATAR's main role is to manage spectrum allocation and the national numbering plan, as well as issuing licences.

There is no regulatory authority specifically governing broadcasting content, although a new media law has been proposed, which would impose stricter controls on content, including video content, published on websites and social media[53].

[47] http://www.accessmylibrary.com/article-1G1-154127275/oman-oman-sets-up.html

[48] http://www.ooredoo.com/en/media/get/20130410_Annual-Report-2012-English-Seperate.zip

[49] paragraph 2.2.3, http://www.ictqatar.qa/sites/default/files/documents/Regulatory%20Strategy%20-%207%20April%202013.pdf

[50] http://www.ooredoo.qa/en/DP_MOZAIC_TV_ON_FIBRE

[51] Digital Media Individuals Survey, 2010.

[52] http://www.ictqatar.qa/en

[53] http://www.aljazeera.com/news/middleeast/2013/05/201353091692391 45.html

(c) Recent developments

ictQATAR recently published a consultation document setting out its intentions for future regulatory policy for the period 2013-2016[54]. This includes plans to regulate the industry in terms of wholesale and interconnection and design 'fit for purpose' policies relating to digital media.

The report notes that:

"In addition to the issues discussed earlier, RA may need to conduct analysis and issue appropriate regulatory instruments (e.g., policies, guidelines, instructions, etc.) on a range of other emerging regulatory issues; including:

- *Regulatory issues concerned with the convergence of fixed, mobile and content services;*
- *The impact of net neutrality on the telecoms market in Qatar;*
- *IT security and cyber-crime; and*
- *Global and regional regulatory initiatives (such as ITU matters and international roaming).*
- *Net neutrality"*[55]

Qatari telecommunications law[56] prohibits anti-competitive practices and abuse of a dominant position, but there does not appear to be any relevant case law.

5. Trends and issues in global regulation of digital broadcasting and online content delivery

The review of the regulatory regimes and recent developments in different jurisdictions in Section 4 above shows a number of emerging trends and issues for regulators to deal with.

5.1 Adapting regulation to reflect convergence

There is an increasing recognition that existing regulatory regimes need to be adapted to deal with the realities of the converged market place. However, traditional regulatory models, with separate systems of regulation and separate regulators for telecommunications networks and content, still predominate. Moreover, despite the increased importance of online content delivery, OTT services and online advertising are often subject to only minimal (if any) regulation, although they remain subject to general competition law.

Some countries (e.g. Malaysia) have introduced a cross-sector regulator to reflect the blurring of boundaries between telecoms and broadcasting. There are a number of practical advantages in having a converged regulator, for example in terms of reduced organisational costs. There is also a benefit in having a single institution responsible for regulating converged services, rather than a number of different bodies with overlapping responsibilities and potentially divergent priorities, in order to ensure consistent in the application of the rules. For stakeholders, clarity as to who is responsible for oversight of digital media and communications and greater certainty about the regulatory rules that apply is also likely to create a more stable investment environment.

[54] http://www.ictqatar.qa/sites/default/files/documents/Regulatory%20Strategy%20-%207%20April%202013.pdf

[55] http://www.ictqatar.qa/sites/default/files/documents/Regulatory%20Strategy%20-%207%20April%202013.pdf

[56] http://www.ictqatar.qa/sites/default/files/documents/telecom%20law%202006.pdf

A further key advantage in having a single converged regulator is that this enables the regulator to address issues which traditionally might have fallen between the gaps and also to draw on experience in one area in regulating other areas.

However, there are also risks involved. An example is the UK experience in relation to the regulation of premium sports content. The Office of Communications (Ofcom), which has responsibility for regulating both telecoms networks and services and broadcasting content in the UK, issued a decision requiring BSkyB, the largest subscription television provider in the UK, to provide wholesale access to its premium sports channels on regulated terms. This remedy was similar to the type of access regulation traditionally imposed on the incumbent telecoms network operator in the UK. Ofcom's decision was subsequently overturned on appeal, demonstrating the difficulties in seeking to apply an approach to regulation that has worked in one area (e.g. telecoms) to another area (e.g. broadcasting content).

Ultimately, there is no "one size fits all" approach and different approaches to regulation are likely to continue across different jurisdictions, reflecting differences in national circumstances.

5.2 Access bottlenecks

One area where regulation has remained least converged is in relation to access issues.

Most countries now have relatively well developed rules governing access to fixed telecom networks, although the advent of next generation networks is likely to mean that effective regulatory engagement in this area remains critical. There is also likely to be an increased focus going forward on so-called third or fourth generation issues, such as quality of service[57].

As telecoms operators have moved up the value chain, this has resulted in a growing battle for the rights to control content. Recent examples illustrate the different ways that this struggle is taking place. The merger between Comcast and NBC Universal in the United States married the largest TV and internet provider with one of the leading sources of content in the country. The less obvious, but more prevalent, power play for content by providers has been to bundle services or to offer preferential access to online content that is affiliated with the operator.

In contrast to network access issues, there has been relatively limited regulatory intervention to date in relation to access to premium content. Access to premium content has often been addressed through the application of competition law, rather than regulation, including via intervention in merger proceedings. For example, extensive conditions were attached to the Comcast/NBC Universal merger by the FCC. The role of regulators has often been limited to overseeing the implementation of remedies agreed in the competition law context.

Going forward, it will be interesting to see whether regulators continue to take a back-seat or whether they adopt a more interventionist and detailed approach to regulating access to premium content.

The increased prevalence of bundled services is also likely to be a focus for regulators going forward. Regulatory choices that are made could hamper or stimulate innovation so it is important that regulators evaluate the potential anti-competitive effects of bundled service packages against the potential for dynamic efficiencies to ensure that an appropriate balance is struck. Whilst most jurisdictions now have competition laws, which could be used to prevent anti-competitive bundling, there is sometimes uncertainty about how such rules apply in practice and the complexities of cost allocation make effective enforcement difficult.

[57] First generation issues include the creation of regulated products (e.g. LLU), whilst second generation issues focus on the pricing of such products.

5.3 Consumer protection

Despite moves towards regulatory convergence, there is likely to be a continued need to maintain separate rules governing market access and consumer protection, which raise very different, and potentially competing, policy considerations.

Consumer protection is one area where different countries adopt very different approaches, given their very different social mores. However, whilst it may not be possible or desirable to standardise the rules in this area, there are certain elements of good practice which are critical in any system of effective content regulation. These include transparency as to the rules to be applied and the existence of effective and independent appeal mechanisms.

5.4 Issues raised by increased use of customer data and online advertising

Section 3 above explained some of the new business models that are emerging in the converged environment, including the increasing importance of online advertising.

Currently, there is very little regulation of online advertising. Traditional content rules often do not apply to such advertising. However, the increasing amount of personal data available to online businesses and the opportunities for using such information, for example through targeted advertising, raises complex regulatory issues, in particular around privacy and data protection. How to deal with such issues is likely to be a key focus for regulators in the future.

5.5 Net neutrality

The huge growth in data being carried over telecom networks and the increased important of traffic management in managing such data means that net neutrality is likely to remain an important issue on regulators' radars.

A review of national regulatory approaches to net neutrality has uncovered mixed results. Three broad approaches can be observed[58]:

- Cautious observation: These countries have taken note of net neutrality issues and have currently chosen not to take any specific measures to address these issues. As noted above, this is the approach adopted by IBPT, the Belgian regulator, which concluded that existing competition laws were sufficient at the present time.
- Tentative refinement: These countries have adopted a light-handed approach, with some refinements to the existing regulatory regime governing communications services, but not going so far as to prohibit certain behaviours. The European Commission has previously adopted this approach, recommending that EU Member States take steps to indirectly address net neutrality through measures including improved transparency in traffic management policies, lowering switching barriers to make it easier for subscribers to switch ISPs, and minimum quality of service requirements. The European Commission has indicated that it might adopt further, potentally more interventionist, measures later in 2013[59].
- Active reform: These countries have gone further and sought to prohibit specific behaviours by ISPs, often subject to reasonable network management practices. Countries such as the United States, France, the Netherlands and Chile have been among the more proactive states. These 'active reformers' have put in place specific net neutrality measures to prohibit blocking and the discrimination of traffic by network operators.

[58] See ITU, Trends in Telecommunication Reform 2013, Chapter 3 on "Net neutrality: a regulatory perspective".

[59] "The EU, safeguarding the open internet for all", speech by Neelie Kroes, 4 June 2013.